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Direct and Indirect Effects of Selected Risk Factors in Producing Adverse Consequences of Drug Use

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ABSTRACT

A path analysis was performed to examine the usefulness of *multiple pathway risk factors* in explaining and predicting youthful alcohol, tobacco, and other drug (ATOD) misuse and its adverse consequences. The risk factors alienation, trait anger, interaction anxiety, and cognitive motivation for drinking were used as exogenous variables with earliness of onset, ATOD use, and adverse consequences of ATOD use serving as endogenous variables. Firm support emerged for both direct and indirect effects of the risk factors on both use and adverse consequences of use.

Key words. Adolescent; Drug use; Risk factors

INTRODUCTION

The search for simple answers to questions about youthful alcohol, tobacco, and other drug (ATOD) use was abandoned many years ago. Recently, etiological studies on adolescent ATOD use have focused on identifying and quantifying relevant risk and protective factors and describing interactions

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among them that predict and explain onset and progression of use (Kandel, 1982; Bry, 1983; Fromm et al., 1986; Hansen et al., 1987; Dielman et al., 1989, 1993; Canterbury, 1992; Donnermeyer and Park, 1995). Although the influence of developmental stages and the sociocultural milieu have also been recognized (Baumrind, 1985; Gorsuch and Butler, 1987; Block and Block, 1988; Needle et al., 1988; Paulson and Coombs, 1990; Yu and Williford, 1992; Werner et al., 1993), a direct causal relationship between consumption of alcohol and other drugs and harmful effects has remained a viable assumption.

However, even casual observation raises questions about this relationship. For example, some young men drive after consuming five or more drinks frequently, and while they may suffer harm, e.g., physiological damage and relationships problems with family or friends, they escape the most tangible outcomes: an accident or an arrest. Others whose drinking is no "heavier" or more frequent incur morbidity/mortality, DWI arrests, loss of license, and prison sentences in addition to less visible outcomes. A more obvious example relates to disputes that escalate to violence following ATOD misuse among some adolescents and not among others. Clearly, the outcomes of consuming alcohol and other drugs cannot be explained from information about consumption alone. I.e., the relationship between alcohol consumption and subsequent harm is not linear. It appears reasonable to attribute these different outcomes to factors other than consumption including but not limited to underlying risk factors, e.g., aggressiveness, low impulse control, and hostility.

Stacy et al., (1991) used structural equation modeling to examine the direct effects of six personality variables (beyond their indirect effects through consumption) on problems from drinking, DWI, and DWI arrests. Their results were clear. Selected risk factors produced adverse effects beyond those attributable to consumption of alcohol, and some of these effects were gender specific (Stacy et al., 1991).

Direct effects have been studied at least since 1985 (Sadava, 1985), but interest in pursuing this line of inquiry has been sparse. However, additional support for the concept termed *multiple pathway risk factors* (Stacy et al., 1991) has continued to grow (Smith et al., 1989; Hays and Revetto, 1990; Canterbury, 1992).

The purpose of this study was: to investigate possible direct effects of risk factors for alcohol, tobacco, and other drug (ATOD) use in producing harmful effects, and to examine the efficacy of the risk factor model in explaining onset and progression of ATOD use among adolescents.

Logic dictates that indirect (mediating) effects, those resulting from consumption of ATOD, produce harmful consequences. I.e., ATOD misuse is followed by health problems or psychosocial difficulties with families, friends, and the law.

Although there is no question that this is true, the relationship between consumption and harmful consequences is more complex than the simple cause and effect postulated. *Direct effects* of risk factors consist of their influence on harmful effects of ATOD use above and beyond the effects of consumption. Examination of the relationship of both direct and indirect effects was the primary purpose of this study. Verification of the usefulness of the risk factor model was included in the study because the methodology selected to examine the direct and indirect effects of selected risk factors was designed for model testing.

This study was designed to examine this concept with risk factors selected to clarify gender differences, a study which has been reported elsewhere (Thomas, 1996). The primary question studied was: What are the direct and indirect effects of the risk factors alienation, trait anger, interaction anxiety, and cognitive motivation for drinking on onset of ATOD use, ATOD use, and harmful consequences of ATOD use?

METHOD

Design

An ex post facto design was adopted in which data were obtained from adolescents on a questionnaire administered anonymously in classroom settings. The extent to which these data identified direct and indirect effects of risk factors on harmful consequences of drug use and provided support for the risk factor model was investigated by means of path analysis.

Figure 1 in the Results section depicts the theoretical model as a fully recursive model with the four risk factors identified in the problem statement above making up the first column. Three sets of explained variables were placed in the second, third, and fourth columns: earliness of onset in the second column, ATOD use in the third column, and harmful effects of ATOD use in the fourth column.

Three regression analyses were performed moving from left to right in Fig. 1. Column one variables were used in the first analysis to predict earliness of onset. Variables in columns one and two were used in the second analysis to predict ATOD use. Variables in columns one, two, and three were used in the third analysis to predict harmful effects of ATOD use.

Population and Sample

The population consisted of White Caucasian adolescents attending two high schools in an upper middle class community in Iowa. Table 1 describes the sample which was 51% male and 49% female. About three-fourths in each

Table 1.

Selected Characteristics of the Sample, Percentages (n = 796)

Variable	Grade 9	Grade 10	Grade 11	Grade 12	Total
Gender:					
Male	49.3	47.7	52.0	57.0	51.4
Female	50.7	51.8	48.0	43.0	48.5
Live with:					
Both parents	75.0	75.0	72.6	71.0	73.6
A single parent	12.5	9.2	11.4	12.3	11.3
Parent/stepparent	11.6	12.2	12.0	15.4	12.7
Other relatives	0.9	2.0	1.1	0	1.0
Guardian/foster parent	0	1.5	2.9	1.2	1.3
Attend religious services:					
Never	14.3	13.2	16.1	20.1	15.8
Seldom	17.0	20.8	19.5	22.6	19.9
Sometimes	16.5	17.3	21.3	20.7	18.6
Often	16.1	18.8	14.4	12.8	15.7
Almost always	36.2	29.9	28.7	23.8	30.0
Academic standing:					
GPA:[a] 3.5 to 4.0	40.2	34.5	39.1	22.0	34.1
GPA: 3.0 to 3.4	37.7	35.6	31.0	40.9	36.3
GPA: 2.5 to 2.9	14.6	21.6	19.5	28.7	20.7
GPA: 2.0 to 2.4	4.0	6.6	9.2	6.1	6.7
GPA: Below 2.0	3.5	1.5	1.1	2.4	2.2

[a]Grade point average.

grade reported that they live with both parents. Less than 3% reported living with other relatives, guardians, or foster parents. Between a fourth and a third reported that they attend religious services almost always; about 16% reported the other extreme, *Never*. The well-known phenomenon of grade inflation is apparent in this sample with 34% reporting grade point averages (GPA) above 3.5 on a scale of 4.0. Another 36% reported GPAs at or above 3.0, and only 2% reported GPAs below 2.0

Two factors verify the relative affluence of this population. First, the proportion of free or reduced-price lunches for students was only 11% compared with the state's average of 25%. Second, the education of parents and educational aspirations of students were much higher than state or national averages. Approximately 52% of the fathers and 43% of the mothers were college graduates with about 16 and 12%, respectively, having completed graduate or professional study. Over 75% of the students expected to complete college or university programs.

Data Collection

Data were collected on a single day in April 1993 by classroom teachers by means of the questionnaire attached as Appendix A. Students used answer sheets designed for optical scanning and were told to omit their names and return their answer sheets to an envelope rather than to their teachers. Although anonymous data collection is traditional in relation to data reporting illegal activities such as drug use, requesting names may result in more accurate data because study participants then assume greater responsibility for their responses. In this project, anonymity was specified in relation to all data collection in the grant application. Teachers used a standardized introduction to data collection in a classroom setting written by the author stressing anonymity and that participation was voluntary. Two weeks before data collection, parents were given an opportunity to prevent their children from participating. Three students did not participate. Of the 812 answer sheets obtained, 16 were incomplete or contained multiple responses, resulting in a sample size of 796.

Of the study variables, the three personality measures pertained to aspects of adjustment: alienation—19 items (Dean, 1961), interaction anxiety—seven items (Leary, 1983), and trait anger—eight items (Spielberger et al., 1983). Adequate psychometric characteristics had been demonstrated for these measures in earlier studies. The fourth risk factor, cognitive motivation for drinking, was developed by the investigator for this study from a review of the literature with expert review used to establish content validity. The questions were pretested for readability and clarity with 14 university students enrolled in the College of Education. Two items were revised in accord with their comments. Of the eight items, two addressed adverse physical and psychosocial effects, one item pertained to the efficacy of alcohol in reducing stress, and five items dealt with the usefulness of alcohol in enhancing social interactions. All risk factors were measured in the direction of risk; the higher the score, the greater the risk for ATOD misuse.

Earliness of onset was measured on a scale of zero to four. The five possible responses were coded as follows: *Never* was coded zero, *16+* was coded one, *13 to 15* was coded two, *10 to 12* was coded three and *Under 10* was coded four. ATOD use and harmful effects were measured using five indicators of frequency from *Never* (coded 1) to *Once a Week* (coded 5). Responses for all items were summed for both ATOD use and harmful effects. Detailed descriptions of these variables are provided in the Results section of this paper.

Since collection of self-report data regarding ATOD use and consequences can be threatening, substantial attention has been devoted to investigating the validity of such data. Youth may under-report their ATOD use for the same reasons that adults under-report socially undesirable or unacceptable behavior,

i.e., from fears of exposure or unknown adverse consequences. In some contexts, youth may overreport their drug use to appear older or uncooperative (Forman and Linney, 1991). However, when conditions protecting respondents' privacy are assured, it has been demonstrated that reasonable validity can be attained with self-report methods (Johnston and O'Malley, 1985). In this study, arrangements were designed to replicate favorable conditions assuring privacy.

Data Analysis

Intercorrelations were computed for all variables, and three regression analyses were performed to compute path coefficients for the variables in the causal model depicted in Fig. 1. Decomposition of the path coefficients into direct and indirect effects was performed by means of simple computations and additional regression analyses as described by Alwin and Hauser (1975). To describe the sample's ATOD-related behavior, frequency distributions were also computed.

Assumptions and Limitations

Assumptions include the following: 1) self-reported data were accurate, 2) relationships in the model were linear and additive as well as causal, 3) residual variables for each set of variables in the model were not intercorrelated nor were they correlated with model variables, and 4) all variables were measured at interval levels.

These assumptions are basic in the use of path analysis for examining the plausibility of postulated causal relationships among study variables. Limitations, in addition to those implied in these assumptions, relate to using cognitive motivation for drinking as a predictor for ATOD onset, use and harmful effects, and to the generalizability of the results. In this sample the use of illicit drugs was negligible, and it seemed plausible to focus on students' beliefs about alcohol rather than their beliefs about all drugs. Although the data about ATOD use among this sample support this decision, this decision is a limitation of the study. Second, the high participation rate (99%) supports the notion that this sample can be regarded as a random sample through time from this population. However, results from this White, upper-middle class community can likely be generalized only to similar communities.

RESULTS

The Sample

Of the 796 respondents, 412 were male and 384 were female. They were about evenly distributed among Grades 9 (291), 10 (236), 11 (212), and 12 (175).

Table 2 summarizes the data regarding onset of ATOD use. The nonresponse rates for these items ranged from 8.6% for inhalants to 91.9% for cocaine/crack, and might indicate that omitting the item was substituted for "Never." Below 10 years of age, the most experimentation took place with alcohol (35.7%) followed by smokeless tobacco (21.9%), inhalants (21.6%), and prescription drugs (16.4%). From 10–12 years of age, the most use occurred for prescription drugs (17.7%), inhalants (16.6%), and cigarettes (15.3). During the junior high years, the greatest first use occurred for prescription drugs not meant for the individual (24.9%), inhalants (17.9%), and cigarettes (16.2%). It is noteworthy that those who are going to experiment or use mood-altering substances do so before age 16, at least in this community.

Table 3 reports ATOD use from this sample. Regarding use of illicit drugs, the *Never* response accounts for some 88–94% of the students. Use of alcohol, tobacco, and the prevalence of binge drinking are the greatest causes for concern.

Table 4 summarizes the self-reported harmful effects of ATOD use. Identifying the most common problems by the lowest *Never* ratings, we see that arguments, trouble with parents, nausea and vomiting, and trouble with friends were reported most often. Least reported were lost job (Note: Many students do not have jobs.), driving after drinking, and trouble with the law. These data are consistent with the picture of students whose drug of choice is overwhelmingly alcohol.

Relationships among Study Variables

Table 5 reports the intercorrelations of study variables as Pearson's *r*'s. All but two of the correlations were significant at .0001.

Table 2.

Onset of ATOD Use, Percentages (n = 796)

	Responses[a]					
Substance	NR	1	2	3	4	5
Cigarettes	56.0	5.1	7.5	15.3	16.2	—
Smokeless tobacco	50.0	8.8	21.9	10.5	8.8	—
Alcohol	29.8	12.6	35.7	12.3	9.6	—
Marijuana	78.5	6.6	9.5	2.2	3.2	—
Cocaine/crack	91.9	1.9	2.6	1.2	2.4	—
Steroids	90.5	2.0	3.7	1.3	2.4	—
Hallucinogens (LSD, PCP)	87.2	1.9	2.9	2.4	5.6	—
Inhalants	8.6	35.2	21.6	16.6	17.9	—
Prescription drugs not meant for student	11.6	29.3	16.4	17.7	24.9	—

[a]1 = Never, 2 = Under 10, 3 = 10–12, 4 = 13–15, 5 = 16+.

Table 3.

ATOD Use, Percentages (n = 796)

Substance	Use levels[a]				
	1	2	3	4	5
Alcohol	31.8	18.0	22.8	14.6	12.9
Marijuana	78.9	6.1	6.8	3.7	4.5
Tobacco	54.9	8.9	10.9	7.0	18.3
Cocaine/crack	93.3	2.3	1.2	0.5	2.6
Steroids	94.4	1.1	1.5	1.1	1.9
Other illegal substances	88.0	4.9	2.3	1.5	3.3
Binge drinking	55.3	12.4	12.8	11.3	8.2

[a] 1 = Never, 2 = Once in last year, 3 = 3–9 times in last year, 4 = At least once a month, 5 = At least once a week.

The significant relationships confirm substantial prior work and suggest that the risk factor variables, though intercorrelated, were relevant to the study purpose. It should be noted, however, that the correlation of ATOD use to harmful effects, though high (.705), explains only about half of the variance.

Table 4.

Harmful Effects of ATOD Use, Percentages (n = 796)

Harmful effect	Ratings[a]				
	1	2	3	4	5
Drinking/driving	76.2	10.4	6.0	3.4	4.0
Missing class	68.2	9.5	10.2	7.4	4.7
Trouble/school	59.3	19.5	9.7	6.6	4.9
Trouble/parents	42.6	17.4	17.1	12.3	10.5
Trouble/law	77.7	13.1	4.9	1.6	2.6
Damaged property	72.7	12.6	8.3	2.8	3.6
Lost job	90.9	4.6	1.6	0.9	2.0
Arguments	32.4	9.7	17.3	17.7	22.9
Nausea/vomiting	45.9	28.5	15.6	15.5	4.5
Physical fight	67.3	17.9	7.8	2.7	4.3
Injury	60.7	18.9	12.0	4.9	3.5
Trouble/friends	50.7	23.9	15.0	6.0	4.3
Poor performance/school	58.2	18.0	10.9	6.8	6.1

[a]1 = Never, 2 = Once in last year, 3 = 3–9 times in last year, 4 = At least once a month, 5 = At least once a week.

Table 5.

Correlations of Study Variables (n = 796)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Alienation	1.000	.310*	.346*	.243*	.136*	.193*	.286*
(2) Trait Anger		1.000	.401*	.219*	.231*	.302*	.350*
(3) Interaction Anxiety		1.000	.137*	.032	.040	.120*	
(4) Motivation/Drinking				1.000	.489*	.489*	.473*
(5) Onset/ATOD					1.000	.729*	.569*
(6) ATOD Use						1.000	.705*
(7) Consequences/ATOD Use							1.000

The two nonsignificant relationships of interaction anxiety to onset of ATOD use and ATOD use merit comment. Computing the intercorrelations by gender clarified these results, suggesting that, in this study, the nonsignificant results were at least as interesting as the significant relationships. For females, interaction anxiety was negatively related to onset of ATOD use and ATOD use; for males, the associations were direct and significant for all three ATOD behavior variables (Thomas, 1996).

The Path Analysis

Possible direct and indirect effects in the model were examined by performing path analysis including all path coefficients that were significant at an alpha of .05 (Fig. 1). The direct effects on onset of drug use of trait anger, interaction anxiety and cognitive motivation for drinking were meaningful using the criterion suggested by Land (1969). Beliefs about the effects of alcohol (cognitive motivation) produced the largest path coefficient (.46) followed by trait anger (.17). Most noteworthy, however, was the suppressing effect indicated by the negative path coefficient of interaction anxiety (-.10). This indicates that increases in interaction anxiety were associated with decreases in earliness of onset. In other words, low interaction anxiety was associated with early onset of ATOD use, and interaction anxiety served as a protective factor rather than a risk factor.

Consistent with a vast body of literature, onset of drug use was most heavily associated with levels of drug use (.62). Each of the risk factors in column one produced meaningful path coefficients as direct effects on ATOD use: alienation .05, trait anger .14, interaction anxiety -.08, and cognitive

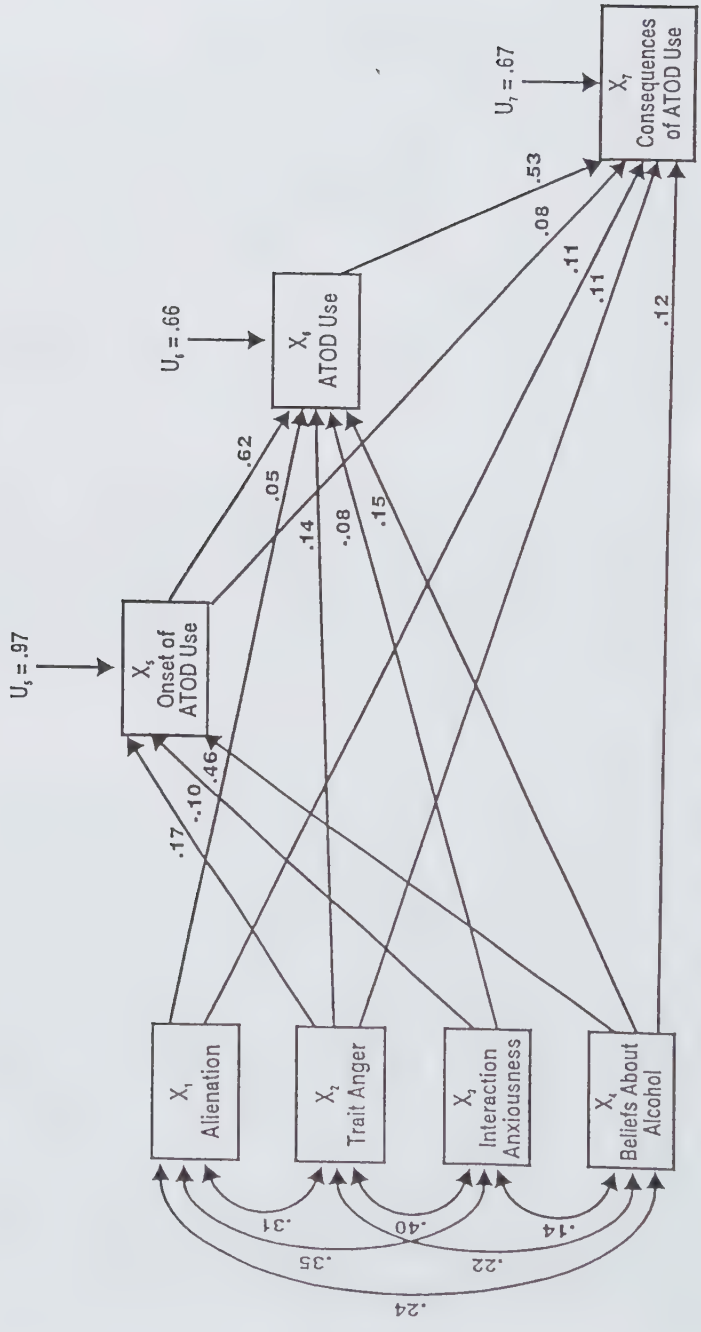

Fig. 1. Path model of adolescents' drug behavior: Onset, use, and consequences of use (n = 796).

motivation for drinking .15. Again, it is noteworthy that the path coefficient for interaction anxiety was negative.

Table 6 summarizes the results of decomposing the total effects into their direct and indirect components. The indirect effect of trait anger via onset (.1140) was nearly as heavy as its direct effect (.1384). Interaction anxiety had a suppressing direct effect on drug use which was amplified by its indirect effect via onset (–.0477). The indirect effect of cognitive motivation for drinking via onset was nearly double its direct effect (.2961/.1549).

The path model for consequences of ATOD use shows that all predictors had direct effects except interaction anxiety although the heaviest direct effect was ATOD use (.5314) as expected. The magnitude of the other direct effects in decreasing order were: cognitive motivation for drinking (.1225), trait anger (.1109), alienation (.1085), and onset of drug use (.0812). Indirect effects via onset in decreasing order were: cognitive motivation for (.0916), trait anger (.0562), and alienation (–.0080), a suppressing effect. Indirect effects via use in decreasing order were: onset (.3320), cognitive motivation for drinking (.0800), trait anger (.0601), and alienation (.0192). It should be noted that all of the risk factors in the first column of the model produced direct effects on ATOD use independent of their effects through onset, and all risk factors except interaction anxiety produced direct effects on harmful effects of ATOD use independent of their indirect effects through onset or use. Also noteworthy was the suppressing effects of interaction anxiety on onset and use and its lack of meaningful effects on harmful effects of ATOD use. It is especially interesting too that alienation had no measurable impact on onset, a direct impact on use, and an even heavier impact on harmful effects. The logic of the model was well supported by these data.

DISCUSSION

The path model for this sample shows clearly that selected risk factors do affect harmful effects from ATOD use above and beyond the consumption of drugs. The personality variables alienation, trait anger, and interaction anxiety and also cognitive motivation for drinking appeared to function as *multiple pathway risk factors*, contributing to harmful effects experienced following ATOD use independently. The results also provide substantial support for the risk factor model for predicting and explaining the development of adolescent ATOD use.

Regarding onset and progression of ATOD use, prior work identifying the importance of cognitive motivation (Mischel, 1973; Ajzen and Fishbein, 1980; Christiansen et al., 1985; Fromme et al., 1986; Stacy et al., 1990; Werner et

Table 6.

Decomposition of Path Coefficients into Direct and Indirect Effects: Total Sample (n = 796)

Endogenous variable	Exogenous variable	Total effect	Indirect effect via		Direct effect	*t*: Direct effect
			X_5 Onset	X_6 Use		
X_5 Onset	X_1 Alienation	—	—	—	—	—
	X_2 Trait Anger	.1697	—	—	.1697	5.02***
	X_3 Interaction Anxiety	−.0996	—	—	−.0996	2.99**
	X_4 Beliefs about Alcohol	.4650	—	—	.4650	14.88***
X_6 Use	X_1 Alienation	—	−.0543	—	−.0543	2.12*
	X_2 Trait Anger	.2524	.1140	—	.1384	5.23***
	X_3 Interaction Anxiety	−.1230	−.0477	—	−.0753	2.87**
	X_4 Beliefs about Alcohol	.4510	.2961	—	.1549	5.69***
	X_5 Onset	.6168	—	—	.6168	22.87***
X_7 Consequences	X_1 Alienation	.1197	−.0080	.0192	.1085	4.24***
	X_2 Trait Anger	.2272	.0562	.0601	.1109	4.27***
	X_3 Interaction Anxiety	—	—	—	—	—
	X_4 Beliefs about Alcohol	.3941	.1916	.0800	.1225	4.29***
	X_5 Onset	.4132	—	.3320	.0812	2.27*
	X_6 Use	.5314	—	—	.5314	14.60***

*$p < .05$.
**$p < .01$.
***$p < .001$.

al., 1993) was supported. This variable had the largest path coefficients of any of the risk factors for onset, ATOD use, and harmful effects. Cognitive motivation had both meaningful direct and indirect effects for ATOD use and harmful effects of ATOD use, suggesting that it influences the progression of experimentation to use and misuse independently. These results suggest that prevention initiatives should include more attention to countering the formation of favorable attitudes toward drinking, at least before age 10, and continuing throughout the teen years. In evaluating prevention initiatives, there is always concern about efficiency, i.e., keeping data collection instruments to manageable lengths. The strength of the variable, cognitive motivation, which is similar to expectancy measures, in the path analysis suggests that it may function as a useful marker for reductions on risk factors over time, i.e., as a proximal outcome measure.

The direct effect of trait anger, a proxy for aggressiveness, on onset and its indirect effects on use and harmful effects, offered no surprises in confirming a large body of prior work (Block and Block, 1988; Jessor and Jessor, 1977; Kellam et al., 1980). Its direct effects were very similar for onset, use, and harmful effects, and indirect effects on use through onset and on harmful effects through both onset and use demonstrate the pervasiveness of aggressive behavior in influencing ATOD use behavior.

However, alienation, the only predictor that did not produce a meaningful path coefficient to onset, presents quite a different picture. Its direct effect on use was canceled by its suppressing indirect effect via onset, and its direct effect on harmful effects far outweighed indirect effects via onset (suppressing) and use (enhancing). This appears to provide support for results reported from an earlier survey in this community that alienation does not function at all well as a predictor of ATOD use where the main component of such use is drinking (Thomas and Hsiu, 1993). Jessor and Jessor's (1977) early identification of alienation as a predictor of problem behavior is not questioned. Rather, drinking appears to be mainstream rather than problem behavior among American adolescents (Thomas and Hsiu, 1993). If this is true, it has profound implications for prevention and for assessing our failures in "winning the war on drugs." For example, experimentation with alcohol, if viewed as normative rather than deviant, suggests that abstinence is an unrealistic goal and that the drive for drug-free communities is ill-advised and wasteful of resources. A reformulation of goals to reduce harm from drinking would result in achievable goals and better use of resources. American prevention programmers have much to learn from countries where harm reduction strategies have been adopted.

Interaction anxiety served as an imputed protective factor, not an imputed risk factor, in its suppressing direct effects on onset and ATOD use, a result

that has prior support (Block and Block, 1988) although, as a component of adjustment, there have been opposite results as well (Gorsuch and Butler, 1987; Pulkkinen and Pitkanen, 1994). This variable had direct effects on onset and use, but not on harmful effects; there were no measurable indirect effects via onset for either use or harmful effects and none via use for harmful effects. In the context of drinking as mainstream behavior, these results imply that Block's explanation of anxious children as being overrepresented among abstainers, i.e., as refraining from this aspect of normal limit-testing among adolescents, is sound. However, further analyses of these data by gender revealed that these results hold for females but wash out for males in the sample (Thomas, 1996).

In this study the direct effects of selected risk factors on harmful effects of ATOD use beyond consumption were demonstrated clearly. Support for the risk factor model was firm, as was support for cognitive social learning theory (Mischel, 1973).

There was substantial verification of prior work, but new questions were raised as well. Further research using this approach appears most needed in distinguishing between problem behavior (here defined as problems resulting from ATOD misuse and use of illicit drugs) and normative behavior (here defined as developmentally appropriate limit-testing including the use of tobacco and alcohol) and identifying the antecedents for each. Since important gender differences were found, other subgroups should be studied as well.

Perhaps a disclaimer is needed. Recognition or acceptance that adolescents' experimentation with alcohol and tobacco may be developmentally appropriate does not suggest that prevention of harmful use of alcohol and tobacco use should not be vigorously pursued. Use of either is illegal, and the physical and psychosocial consequences have been demonstrated fully. However, the profiles of harm from alcohol and tobacco are very different, and it is suggested that prevention is best guided by accurate definitions of what constitutes mainstream and problem behavior together with information about the antecedents of each. In this context, one would regard prevention of any use of tobacco as a reasonable goal because it is rapidly addictive and because it is the number one cause of preventable death in the United States.

Research suggests quite a different approach for alcohol. While recognizing that it *can* cause enormous harm when used in certain situations or used excessively, we can find little evidence of harm from moderate use. Quite the contrary, with some suggestions that moderate use of alcohol may confer some protection from heart disease. These factors suggest that our resources for prevention should focus squarely on harm reduction instead of abstinence.

APPENDIX A: CONSORTIUM PROJECT 1993 HIGH SCHOOL STUDENT SURVEY

The purpose of this survey is to gather information about students' beliefs, opinions, attitudes and practices. Please be as honest as you can. The questions are designed for short answers to take as little of your time as possible. Choose the best answer for each question. Please answer candidly.

All data are confidential and anonymous and are being collected by the University of Iowa evaluation team. There is no need for any identifying information. Put your answer sheet in the envelope provided. This survey should be placed beside it, but not in the envelope. Use a pencil and the answer sheet for all of your answers. If you skip a question, skip that space!

ABOUT YOU Please blacken the circle the best response on your answer sheet.

1. Your gender?
   (1) male
   (2) female
2. Your grade in school?
   (1) 7th or 8th grade
   (2) 9th grade
   (3) 10th grade
   (4) 11th grade
   (5) 12th grade
3. Eventually, how much schooling do you want to complete?
   (1) finish high school
   (2) attend community college or a vocational school
   (3) attend some college or university
   (4) finish college or university
   (5) finish a post-graduate or professional program
4. What is the educational level of your father?
   (1) some high school
   (2) finished high school
   (3) some college
   (4) finished college
   (5) finished post-graduate/professional program
5. What is the educational level of your mother?
   (1) some high school
   (2) finished high school

(3) some college
(4) finished college
(5) finished post-graduate/professional program

6. How much do you get into trouble at school?
   (1) never
   (2) seldom
   (3) sometimes
   (4) often

YOUR OPINIONS The statements that follow refer to your feelings about your social relationships and your opinions about others. Give your feeling or your opinion by blackening the space on your answer sheet to mean:

1 = Strongly Agree
2 = Agree
3 = Neither Agree nor Disagree
4 = Disagree
5 = Strongly Disagree

7. I don't get much satisfaction from the groups I participate in.
8. Sometimes I feel all alone in the world.
9. There are good people around me who understand my views and beliefs.
10. I don't get invited out by friends as often as I'd really like.
11. I have a boyfriend/girlfriend who gives me support and encouragement.
12. The world in which we live is basically a friendly place.
13. Real friends are as easy as ever to find.
14. There is no one I have felt close to for a long time.
15. Most people today seldom feel lonely.
16. I don't get to visit friends as often as I would like.
17. Most everyone around me seems like a stranger.
18. I belong to a network of friends.
19. One can always find friends if he shows himself friendly.
20. There are people I can count on for companionship.
21. People are just naturally helpful and friendly.
22. I don't have one specific relationship in which I feel understood.
23. There are few dependable ties between people anymore.
24. I am an important part of the emotional well-being of another person.
25. I don't have a special love relationship.

YOUR BELIEFS A number of statements that people have used to describe themselves are given below. Mark how you generally feel by blackening the appropriate number on your answer sheet:

1 = Almost never
2 = Sometimes
3 = Often
4 = Almost always

26. I am quick tempered.
27. I feel nervous even in casual get-togethers.
28. It makes me furious when I am criticized in front of others.
29. I wish I had more confidence in social situations.
30. I get angry when I'm slowed down by others' mistakes.
31. I feel infuriated when I do a good job and get a poor evaluation.
32. I feel nervous when calling someone I don't know very well on the telephone.
33. I feel annoyed when I am not given recognition for doing good work.
34. I am at ease when speaking to a member of the opposite sex.
35. I feel relaxed around other people, even people who are quite different from myself.
36. When I get mad, I say nasty things.
37. Parties make me feel anxious and uncomfortable.
38. I feel irritated.
39. I get nervous when I must speak to a teacher or principal.
40. It makes my blood boil when I am pressured.

YOU AND DRUGS For the next 21 items, please use the following number codes for your answers. Items 48–61 refer to problems that occurred because of your use of alcohol or other drugs.

1 = Never
2 = Once in last year
3 = 3–9 times in last year
4 = At least once per month
5 = At least once per week

41. Used alcohol
42. Used marijuana
43. Used tobacco (smoke or chewing)
44. Used cocaine/crack
45. Used steroids
46. Used other illegal substances
47. Had 5 or more drinks on one occasion
48. Driving after drinking
49. Missing class
50. In trouble at school
51. In trouble with parents

52. In trouble with the law
53. Damaged property
54. Lost a job
55. Had arguments
56. Nausea or vomiting
57. Physical fight
58. Injury
59. Trouble with friends
60. Poor performance in school
61. Riding with someone who has been drinking

For these questions, use these codes:

1 = Never Used
2 = Under 10 years old
3 = 10–12 years old
4 = 13–15 years old
5 = 16+ years old

When did you first use . . .?

62. tobacco
63. alcohol
64. marijuana
65. cocaine/crack
66. hallucinogens (LSD, PCP)
67. inhalants (glue etc.)

YOUR IDEAS ABOUT ALCOHOL Whether or not you have ever used (or presently use) alcohol, you have beliefs about it. Indicate your ideas using

1 = Strongly Agree
2 = Agree
3 = Uncertain
4 = Disagree
5 = Strongly Disagree

68. Drinking is a way to reduce tension or worries when you're bothered about something.
69. Drinking makes it easier to relax and join in fun with others at a party.
70. Socializing with members of the opposite sex is a lot more fun and easier when you're drinking.
71. Standing up for yourself (being assertive about your rights) is more effective when you've had a few drinks.
72. Drinking helps a person's confidence in himself or herself.
75. Drinking gives a person an enhanced feeling of power and ability to influence others.

76. Alcohol makes most people more interesting.
77. Drinking makes a person feel more coordinated.
78. Drinking makes it easier for a person to express his or her feelings.
79. Drinking is a nice way to celebrate special occasions.
80. Alcohol helps people fall asleep easier and sleep better.

Please check to see that you have answered all questions. Thank you for participating in this survey!

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RESUMEN

Para examinar la utilidad de los múltiples factores de riesgo al explicar y predecir el abuso juvenil del alcohol, del tabaco y de otras drogas (ATOD) y sus consecuencias adversas, se hizo un análisis de trayectoria. Los factores de riesgo: la alienación, el carácter irascible, la ansiedad ante las relaciones interpersonales, y la motivación cognitiva para la bebida se usaron como variables exógenas; el comienzo temprano del abuso de estas sustancias, el uso de ATOD y las consecuencias adversas de su uso se utilizaron como variables endógenas. Tanto los efectos directos como los indirectos de los factores de riesgo se apoyaron en lo relativo al uso y las consecuencias adversas de su uso.

RÉSUMÉ

Afin d'examiner l'utilité d'une méthode de recherche appelée les facteurs de risques de chemins mutiples on a effectué une analyse de ces facteurs et de leurs parcours. Le but de cette analyse était d'expliquer et de prédire l'abus et les effets négatifs chez les adolescents de la drogue (l'Alcool, le Tabac, et d'Autres Drogues) (ATAD). Les facteurs de risques comme l'aliénation, l'irritabilité, ? d'interaction sociale, et la motivation cognitive pour l'abus de l'alcool ont été utilisés comme variances externes dont la présence s'est manifestée tôt chez l'individu. L'usage de l'ATAD et ses effets negatifs ont été utilisés comme des variances internes. Une évidence forte a émergé en faveur des effets directs et indirects concernant les facteurs de risques de l'abus et également des effets negatifs de cet abus.

THE AUTHOR

Barbara S. Thomas, Ph.D., is a professor in the University of Iowa's College of Nursing. Dr. Thomas has been active in evaluating prevention initiatives for nearly 20 years. Her current research focuses on gender differences in the etiology of adolescent ATOD use. In addition to her research and evaluation, Dr. Thomas developed research-based computer-assisted-instruction (CAI) for primary prevention of ATOD misuse for both children and adults.

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Measuring and Comparing the Attitudes and Beliefs of Staff Working in New York Methadone Maintenance Clinics

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ABSTRACT

Scales measuring commitment to abstinence-oriented policies, attitudes to drug addiction, and knowledge of methadone maintenance were refined and tested in a survey of staff working in 14 New York maintenance programs. Confirmatory factor analysis established the validity of a 9-item Abstinence Orientation Scale and a 6-item Disapproval of Drug Use Scale. Scores on the two scales and Knowledge scores were highly correlated. There were highly significant differences in the mean Abstinence Orientation scores of the administrative and better qualified clinical staff on the one hand and the less qualified staff on the other. Senior staff generally rejected abstinence-oriented policies while nurses and counselors tended to support them.

Key words. Methadone maintenance; Methadone/rehabilitation; Heroin dependence; Staff attitudes

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INTRODUCTION

Methadone maintenance is one of the most effective medical preventive treatments. When the results of two American, a Swedish, a German, and an Australian cohort study were combined in a meta-analysis, addicts receiving methadone maintenance were shown to be at a quarter of the risk of dying of those not in treatment (Caplehorn et al., 1996a). A meta-analysis of the results of an Australian and two European surveys shows methadone maintenance patients are significantly less likely to report using contaminated needles and syringes than daily heroin users not in treatment (Caplehorn and Ross, 1995). This latter finding is consistent with the results of surveys of United States methadone patients which show they are less likely to be infected with HIV than addicts not in treatment (Abdul-Quader et al., 1987; Brown et al., 1989; Metzger et al., 1993). Other American studies provide evidence methadone maintenance reduces addicts' criminal activity and their risk of imprisonment (Gearing and Schweitzer, 1974; Ball and Ross, 1991; Ward et al., 1992).

However, methadone maintenance remains a controversial treatment in the eyes of the media and the general public, and many politicians, administrators, and health care workers (Gerstein and Harwood, 1990; Gerlach and Schneider, 1990; Newman, 1991). The debate among health workers centers on the primary objective of maintenance treatment. Those who support an abstinence-orientation see methadone maintenance as a means of weaning addicts off all drugs, including methadone. Others believe methadone maintenance is only effective so long as patients are receiving treatment and, consequently, offers addicts indefinite maintenance and encourages them to remain in treatment.

A scale measuring the strength of commitment to abstinence-oriented policies has been developed and validated in Australia (Caplehorn et al., 1996b). Scores on this Abstinence Orientation Scale were stongly associated with scores on a scale measuring support for the punishment of illicit drug use but were not significantly associated with knowledge of the risks and benefits of methadone maintenance treatment. Another study has shown significant associations between private physicians' scores on the Abstinence Orientation Scale and retention of patients in their programs (Caplehorn et al., 1996c).

This is the report of the use of a modified version of the Australian instrument in a survey of New York City methadone staff. The study was undertaken, firstly, to modify and validate the scales for use in the United States and, secondly, to compare the attitudes of administrative and clinical personnel working in 14 New York City methadone maintenance clinics.

SUBJECTS AND METHODS

Programs and Staff

All persons working in clinical and administrative positions in 14 New York City methadone clinics in mid-1994 were eligible for inclusion in the survey. The 14 clinics serviced the same general area of the city, were run by two large hospital organizations, had been operating for many years, and offered addicts high-dose, long-term methadone maintenance. All clinics employed general drug user treatment counselors, counselors with postgraduate training, and a medical and nursing staff to provide methadone treatment and general health care. Senior administrative staff working in the two programs' central offices were included in the survey.

The survey was voluntary and anonymous and conducted by the principal author (J.R.M.C.). Subjects completed the questionnaire in groups with the investigator present. Subjects at four clinics were retested by another of the authors (D.M.H.) 6 to 8 weeks after completing the initial survey.

Survey Instrument and Scale Assessment

The 45-item survey instrument was based on two attitudinal scales and a test of knowledge regarding methadone maintenance first developed and validated in Australia (Caplehorn et al., 1996b). The 14-item Abstinence Orientation Scale was modified to suit American conditions and expanded to 25 items. The additional items concerned cocaine use, requirements for admission to and expulsion from methadone maintenance, and HIV/AIDS. Four items were added to the 6-item Disapproval of Drug Use Scale. These extra items concerned doctors' prescribing heroin, needle and syringe exchanges, and the punishment of convicted drug dealers. The questionnaire also included a test of knowledge of the risks and benefits of methadone maintenance treatment. When scoring the 10 knowledge items, one point was given for correct answers, one subtracted for incorrect answers, and no change made for uncertain or missed responses. All questions, that is, the 35 attitudinal and 10 knowledge items, were answered on a 5-point modified Likert Scale.

As the Australian instrument was modified prior to its use in the United States, confirmatory factor analysis was again used to refine and test two scales (SAS, SAS Institute, Cary, NC). The goodness-of-fit of the final model was measured using the maximum likelihood function (SAS, 1993) and taken as a test of the scales' construct validity (Bollen, 1989). Cronbach's α (Cronbach, 1951) was used to measure and maximize the resulting scales' internal reliabil-

ity (SPSS-X, SPSS Inc., Chicago, Ill). The intraclass correlation coefficient (Bartko, 1966) was used as the measure of test–retest reliability.

Analysis

Staff were grouped according to whether or not they were administrators, and the nonadministrators were further divided according to their qualifications. The associations of these staff groupings with scores on the Abstinence Orientation Scale were estimated using linear regression. Allowance was made for the effects of program and respondents' sex and race, whether they had a history of addiction or alcoholism, whether they had ever received methadone maintenance, the time they had worked in methadone maintenance, and their Disapproval of Drug Use and Knowledge scores. Product terms were constructed using the dummy variables coding staff groups and the Disapproval of Drug Use scores to test the parallel lines assumption, and their effect was summarized using a multiple partial F test (Kleinbaum et al., 1988). Models were checked for collinearity and influential observations. The normality of the distribution of the jackknife residuals (Armitage and Berry, 1994) was assessed using a method based on the Shapiro–Wilk statistic (SAS, 1985).

RESULTS

Respondents

In all, 201 staff members completed the survey. Seven eligible persons (a general drug user counselor, three nursing staff, and three senior administrators) declined to be involved, and two more returned incomplete forms. A further 17 staff were not available at the time of the survey. Of those who completed the survey, 24 did not provide any personal information. The investigators noted that the less qualified staff seemed more anxious to avoid possible identification. Of the 177 subjects who provided information, 32 were administrators, 9 were doctors, 29 had master's qualifications in psychology or social work, 3 had master's degrees in nursing, 48 had bachelor's qualifications, and 56 had no tertiary training. These staff are further described in Table 1. Additional background data cannot be presented as it was agreed published reports would neither identify nor allow the identification of the participating clinics or staff.

Administrators were significantly more likely ($p < .001$, χ^2) to have master's qualifications (17 of 32) and less likely to have no tertiary qualifications (4 of 32) than nonadministrative staff. There was a highly significant difference in the mean times the various groups had worked in methadone maintenance ($p < .001$, ANOVA, Table 1). Administrators generally had

Table 1.

Selected Background Characteristics of Methadone Program Staff

	n	%
Female (*n* = 169)	110	65
Male	59	35
African-American (*n* = 172)	58	33
Hispanic	46	27
White	64	37
Asian	4	2
Dependence history (*n* = 174)	32	18
Methadone maintenance (*n* = 175)	13	7

Years worked in methadone maintenance:

	n (177)	Mean	SD
Administrators	32	11.4	7.7
Doctors	9	2.3	1.3
Master's Psych/SW	29	7.9	7.3
Nursing master's	3	15.6	6.8
Bachelor's Psych/SW	48	5.4	5.6
No tertiary qualifications	56	8.3	7.7

more experience in methadone maintenance than other staff (mean 11.4 vs 7.1 years, $p < .002$, t-test).

Scales

The Abstinence Orientation and Disapproval of Drug Use Scales were reduced to 9 and 6 items, respectively, Table 2. The final model performed well in testing using confirmatory factor analysis. The observed and predicted covariance matrices were acceptably similar [the elliptically corrected $\chi^2_{89} = 109.8$, $p = .07$ (SAS, 1993), $n = 181$, Hoelter's critical $n = 170$, root-mean-square residual = 0.056]. These results are taken as establishing the two scales' construct validity (Loehlin, 1987). The correlation of the two factors was 0.61.

Further testing showed the scales to be reliable. Cronbach's α, the measure of internal reliability, was 0.82 for the Abstinence Orientation Scale and 0.70 for the Disapproval of Drug Use Scale. A total of 41 subjects were retested, and the intraclass correlation coefficients for the two sets of results on the two scales, the measure of their test–retest reliability, were 0.91 and 0.71, respectively.

Table 2.

Final Scales

Loading	Item
	Abstinence Orientation Scale
0.76	It is unethical to maintain addicts on methadone indefinitely.
0.71	After a period of stable maintenance, patients should be encouraged to start a gradual withdrawal from methadone.
0.67	Methadone should be gradually withdrawn once a maintenance patient has ceased using heroin.
0.64	Abstinence from all opioids (including methadone) should be the principal goal of maintenance treatment.
0.52	No limits should be set on the duration of methadone maintenance.[a]
0.52	Maintenance patients who continue to use heroin should have their dose of methadone reduced.
0.52	Maintenance patients should only be given enough methadone to prevent the onset of withdrawals.
0.49	Maintenance patients who repeatedly fail to keep counseling appointments should be gradually withdrawn off methadone.
0.36	Left to themselves, most methadone patients would stay in maintenance for life.
	Disapproval of Drug Use Scale
0.62	Modern society is too tolerant toward drug addicts.
0.59	Persons convicted of the sale of illicit drugs should not be eligible for parole.
0.57	Drug addiction is a vice.
0.55	Adults convicted of selling heroin or cocaine to minors should be jailed for life.
0.48	People who become addicted to heroin only have themselves to blame.
0.39	Drug addiction is a menace to society.

[a]Negated in analysis, score = 6 - score.

Attitudinal Scores

The Abstinence Orientation, Disapproval of Drug Use, and Knowledge scores for the 177 subjects who provided personal information were summarized in six staff groups, Table 3. The scores on the two scales were manipulated (total score/number of questions answered), so they could be more easily interpreted on the 5-point modified Likert Scale: 1 = strongly disagree; 2 = disagree; 3 = uncertain; 4 = agree; 5 = strongly agree. The correlations between the three scores were calculated using results from all 201 subjects, Table 3.

As expected, there was a strong, positive correlation ($r = 0.46$) between Abstinence Orientation and Disapproval of Drug Use scores. (This is lower

Table 3.

Scores by Staff Group and Correlations between Scores

Staff group	*n*	Mean AO score[a]	SD	Adjusted[b] AO score	Mean DDU[c] score	Mean test[d] score
Administrators	32	2.15	0.74	2.04	2.50	6.1
Doctors	9	2.14	0.52	2.00	2.74	7.7
Master's Psych/SW	29	2.58	0.53	2.46	2.79	4.4
Nursing master's	3	2.78	0.40	2.68	2.61	6.3
Bachelor's Psych/SW	48	3.00	0.66	2.95	3.06	3.6
No tertiary qualifications	56	3.26	0.60	3.03	3.19	2.7

Correlations[e]	Disapproval of drug use	Knowledge of MM
Abstinence orientation scores	0.46[f]	−0.53[f]
Disapproval of drug use scores		−0.34[f]

[a]Abstinence orientation score: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree.
[b]Adjusted for differences in DDU and knowledge scores.
[c]Disapproval of drug use score.
[d]Knowledge score, maximum = 10.
[e]Product-moment correlation coefficients calculated using all 201 sets of scores.
[f]$p < .0001$.

than the correlation between the two factors because some of the variability in the scores is excluded from consideration in the factor analysis.) There were also strong, negative correlations between Knowledge scores and both Abstinence Orientation and Disapproval of Drug Use scores (r = –0.53 and r = –0.34, respectively).

Comparison of Scores

When Abstinence Orientation score was regressed on Disapproval of Drug Use and Knowledge scores and subject descriptors, the distribution of the residuals approximated the normal (p = .84, Shapiro–Wilk). Respondents' Disapproval of Drug Use and Knowledge scores, their race, addiction/alcoholism and methadone treatment histories, and their qualifications/administration group were all significantly associated with their Abstinence Orientation scores, Table 4. Hospital group, sex, and time worked in methadone maintenance did not have a significant association with Abstinence Orientation score. The linear regression model accounted for 57% of the variance but was based on only 144 of a possible 201 (72%) observations. However, analyses using all 201 observations showed the relatively high number of missing values did not have a meaningful effect on the regression estimates.

Staff with no tertiary education were used as the reference group in the final linear regression model, Table 4. While allowing for differences in race,

Table 4.

Linear Regression Model of Abstinence Orientation Scores[a] (n = 144)

Variable	β coefficient	SE	*p* value
Administrator	–0.63	0.14	<.001
Doctor	–0.61	0.22	<.01
Master's Psych/SW[b]	–0.39	0.15	<.005
Bachelor's Psych/SW[b]	–0.14	0.13	.26
Master's Nursing	–0.01	0.39	.97
DDU score[c]	0.191	0.066	<.005
Knowledge score	–0.068	0.016	<.001
African-American	0.25	0.11	.03
Hispanic	0.37	0.12	<.005
Alcoholism/addiction history	0.28	0.13	<.05
Methadone maintenance	–0.62	0.20	<.005
Intercept	2.60	0.27	

[a]Abstinence orientation score: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree

[b]Psychology or social work.

[c]Disapproval of drug use score.

addiction/alcoholism and methadone treatment histories, and Disapproval of Drug Use and Knowledge scores, we found staff with no tertiary education had a significantly higher mean Abstinence Orientation score than administrators, doctors, and those with postgraduate qualifications in psychology or social work, ($F_{3,132} = 7.04$, $p = .0002$). There was no significant difference in the mean Abstinence Orientation scores of staff with no postgraduate training and those with bachelor's qualifications in psychology or social work and the three subjects with a master's degree in nursing ($F_{2,132} = 0.65$, $p = .53$). Staff with a history of methadone maintenance treatment had significantly lower mean Abstinence Orientation scores, whereas those with a history of addiction or alcoholism had higher mean scores.

However, as there were highly significant differences in mean Disapproval of Drug Use ($p = .002$, ANOVA) and Knowledge scores ($p < .0001$, ANOVA) between the staff groups (Table 3), the actual differences in mean Abstinence Orientation scores were greater than suggested by the regression coefficients, Table 4. If each group's mean Disapproval of Drug Use and Knowledge scores are inserted in the regression equation, an adjusted mean Abstinence Orientation score can be calculated while allowing for the other variables in the model, Table 3.

The staff groups' adjusted mean Abstinence Orientation scores are more immediately interpretable when expressed in terms of the 5-point Likert Scale. An adjusted mean Abstinence Orientation score of approximately 3 indicates staff without tertiary training, and staff with bachelor's level qualifications, on average, agreed with half of the items on the scale and disagreed with rest (agree = 4, disagree = 2). Administrators and doctors, on the other hand, generally disagreed with all nine Abstinence Orientation items. Those with master's degrees on average agreed with two or three items supporting abstinence-oriented policies and disagreed with the rest.

When the 32 administrators were considered separately, there was again a significant association between their qualifications and Abstinence Orientation scores. The mean Abstinence Orientation score for the 19 administrators with a master's degree or medical qualifications was 1.93 compared with 2.47 for the 13 with a bachelor's level or no tertiary qualification ($p < .05$, t-test).

DISCUSSION

A survey of staff working in New York methadone clinics demonstrated the validity and reliability of scales measuring their commitment to abstinence-oriented policies and their support for the punishment of illicit drug users. As was found in a previous survey of Australian methadone staff, scores on the two scales were highly correlated (Caplehorn et al., 1996b). While the results

of a confirmatory factor analysis show the scales measure distinct attitudinal domains, both are characterized by a rejection of opioid dependence, whether licit or illicit, and support for the use of punitive sanctions to control drug use. The survey showed administrators and better qualified staff generally rejected abstinence-oriented treatment policies while the less qualified tended to support their implementation.

The nine-item Abstinence Orientation Scale is best characterized by the two statements: "It is unethical to maintain addicts on methadone indefinitely"; and, "After a period of stable maintenance, patients should be encouraged to start a gradual withdrawal from methadone." In this and other ways it is very similar to the 14-item Australian scale on which it is based (Caplehorn et al., 1996b). Indeed, seven of the 10 best performed items on the Australian are included in the American scale. Two items concerning patients' continued cocaine use and 10 other new items were eliminated in the course of scale development. This shows support for punitive responses to continued cocaine use or the sale of methadone; support for restrictive admission criteria and staff's views on the expulsion of patients were not strongly associated with support for abstinence-oriented policies.

The six-item Disapproval of Drug Use Scale did not have as high internal or test–retest reliability as the Abstinence Orientation Scale. However, it was reasonably well performed and four of its items were among those retained in the six-item Australian scale (Caplehorn et al., 1996b). The major difference was the elimination of items concerning marijuana use. As in the Australian study, items concerning the desirability of needle and syringe exchanges and the medical supply of heroin to addicts were eliminated during confirmatory factor analysis. As similar items were excluded from the Abstinence Orientation Scale, attitudes to HIV and harm minimization were not closely associated with strength of support for either abstinence-oriented policies or the punishment of illicit drug users.

While the official objective of the clinics was the provision of indefinite methadone maintenance, the survey showed less qualified clinical staff tended to support abstinence-oriented policies. By way of contrast, program administrators, doctors, and those counselors who had postgraduate qualifications generally rejected abstinence-oriented policies. As some of the difference in mean Abstinence Orientation scores was accounted for by differences in knowledge of the benefits and risks of methadone treatment, improved in-service training would probably reduce the differences among staff groups.

However, most of the difference in strength of commitment to abstinence-oriented policies between staff groups was not explained by differences in knowledge concerning methadone. In general, the more highly educated staff gave stronger support to indefinite maintenance and rejected abstinence-oriented

policies. Even among the administrators there was a significant difference in mean Abstinence Orientation scores between the better and less qualified. This may mean one way to improve methadone maintenance services is to attract more highly qualified staff by offering appropriate wages, working conditions, and career opportunities.

However, differences in qualifications probably also signify differences in self-selection. As doctors and senior counseling staff could easily have found alternate employment with better pay and career prospects, they are more likely to want to work in an indefinite maintenance program than those with more restricted career opportunities. If this is so, the present study overestimates the effect of education on support for indefinite maintenance. But this process of self-selection is also facilitated by improving the pay and career prospects of methadone treatment staff. It should also be remembered, the findings of the present study do not necessarily apply to individual staff members. For instance, some unqualified counselors were more supportive of indefinite maintenance than some administrators and doctors.

Recent Australian reports suggest strong commitment to abstinence-oriented policies is associated with decreased retention of patients, increased in-treatment heroin use, and an increased likelihood of relapse to heroin addiction after discharge (Caplehorn et al., 1993; Caplehorn, 1994; Caplehorn et al., 1996c). However, these are the effects of differences in attitudes between clinics, not of differences in attitude of groups working in the same clinic. While the support given abstinence-oriented policies by many of the staff involved in the present study would almost certainly have adverse effects on their patients' performance, these effects would be limited by the support given indefinite maintenance by the clinics' administrators, doctors, and senior counseling staff. More research is needed into the effect on patient outcomes of differences in attitude among staff working in the same methadone clinic.

The results of the present study suggest more attention needs to be paid to the attitudes and beliefs of staff treating drug addicts. Attempts should be made to select applicants with nonpunitive attitudes to illicit drug use and special consideration given to employing recovered addicts with a history of methadone maintenance treatment. More resources should be made available for staff training, including postgraduate university education, and to improve the pay and career prospects of addiction treatment personnel.

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RESUMEN

Se refinaron las escalas que miden adherencia a normativas orientadas hacia la abstinencia, actitudes hacia la drogadicción y conocimientos sobre mantenimiento con metadona, y luego se pusieron a prueba en un sondeo del personal que trabaja en 14 programas de mantenimiento en Nueva York. El análisis de factores confirmantes estableció le validez de una escala de nueve componentes sobre la orientación hacia la abstinencia y otra de seis componentes sobre la desaprobación del uso de drogas. Los resultados en estas dos escalas y los de la de conocimientos mostraron una alta correlación. Los resultados medios de la orientación hacia la abstinencia mostraron diferencias altamente significativas entre el personal administrativo y clinico de más alta capacitación, por un lado, y el personal menos capacitado, por el otro. El personal supervisor superior en general rechazó las normativas orientadas hacia la abstinencia, mientras que las enfermeras y consejeras tendieron a apoyarlas.

RÉSUMÉ

Des barèmes pour mesurer l'engagement qui existe pour des politiques orientées vers l'abstention, les attitudes envers la toxicomanie et les connaissances sur le maintien sur méthadone ont été affinées et examinées dans une étude effectuée parmi le personnel travaillant dans 14 programmes de maintien à New York. Des analyses de facteurs confirmatoires ont établi la validité d'un barème d'abstention de 9-point et un barème de 6-point de désaprobation de l'utilisation de la drogue. Les résultats provenant des deux barèmes et les résultats des connaissances révélaient une forte corrélation. Des différences importantes existaient dans les résultats de la moyenne d'orientation de l'abstention parmi le personnel administratif et le personnel clinique mieux qualifié d'un côté et le personnel moins qualifié de l'autre. De façon générale,

le personnel supérieur rejetait les politiques orientées vers l'abstention tandis que les infirmières et les conseillers avaient tendance à les soutenir.

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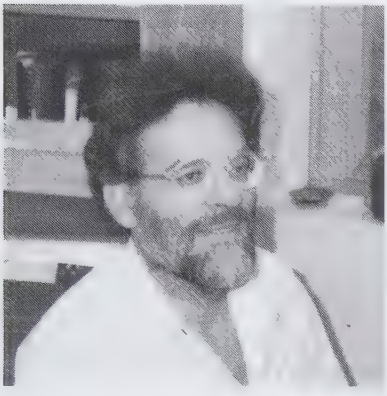
Diana M. Hartel, Dr.P.H., is an Assistant Professor of Epidemiology at Albert Einstein College of Medicine, Montefiore Medical Center. She started working with drug-using populations in 1986 in a study of HIV among Bronx injecting drug users (IDU). This has become one of the oldest, continuously followed cohorts of IDU in the United States and is the basis of several reports on HIV risk reduction and the effect of high-dose methadone maintenance. Dr. Hartel also heads a nonprofit organization, Bronx Community Works, which facilitates job skills training and access to business opportunities for drug users and other low-income groups in the Bronx.



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Ethnicity and Substance Use

Cultural Linkage: Treating Maori with Alcohol and Drug Problems in Dedicated Maori Treatment Programs

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ABSTRACT

Maori are the indigenous people of New Zealand and suffer more health problems, including alcohol and drug-related problems, per head of population compared with the Pakeha (non-Maori) population. An initiative to develop dedicated Maori alcohol and drug user treatment programs, which offer "cultural linkage," is currently being undertaken. This initiative is based on the premise that addressing cultural needs makes alcohol and drug treatment more effective for Maori than mainstream programs which do not specifically address these special needs issues. As yet, there are no data from controlled studies which address this proposition. Key problems related to the devel-

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opment of "cultural linkage" programs in New Zealand are identified and solutions suggested along with future direction for research in this area.

Key words. Culture; Indigenous peoples; Special needs populations; Alcohol and drug dependence; Treatment outcome

BACKGROUND

New Zealand is situated in the South Pacific and has a population of three and a half million people. Although the majority of the population are of European descent, Maori are recognized as the indigenous people of New Zealand (tangata whenua) and are the largest minority group comprising about 15% of the population. Maori includes anyone of Maori heritage who chooses to identify as Maori (Metge, 1976). Over the past two decades there has been a growing cultural renaissance of Maori, leading to a revival of interest in the language, values, and customs as well as active promotion of the Treaty of Waitangi, the founding document of New Zealand, signed by the British officials and Maori chiefs in 1840 (Orange, 1989).

Increasingly, it is being recognized that the principles enshrined in the Treaty of Waitangi have not always been honored by the Crown. The New Zealand government is currently undertaking a process of review through a statutory body, the Treaty of Waitangi tribunal, and attempting to address Maori grievances with respect to land claims (Department of Justice, 1993). Maori argue that the loss of their lands, urbanization, breakdown in traditional tribal structures, the general loss of dignity, respect (mana), and identity among their people has contributed to the difference between Maori and Pakeha (non-Maori) health statistics, including rates of alcohol and drug disorder. This socioethnic view is supported by research into other cultural minorities (Tucker, 1985), suggesting that factors such as economic disadvantage and racial discrimination are more important etiologically than an imputed inherent vulnerability to these problems.

There has been a conspicuous lack of comprehensive epidemiological studies of the health status of Maori compared with non-Maori in New Zealand. The most reliable data comes from public hospital admission and discharge statistics, but even these are plagued by methodological problems, not the least of which has been the interpretation of Maori used by different institutions (Graham et al., 1989). However, there is now a weight of evidence that indicates the health status of Maori is lower than that of non-Maori in terms of physical (Pomare, 1980), psychiatric (Sachdev, 1989), and alcohol and drug misuse (Smith et al., 1992) indices. *Hauora: Maori Standards of Health III*

(Pomare, 1995) is arguably the most authorative and up-to-date publication addressing the health status of Maori and confirms previously identified gaps between the health status of Maori compared with non-Maori. Some pertinent examples are documented in Tables 1 and 2.

Table 1 data, from public hospital discharges for selected conditions, show that the rate of physical morbidity in Maori is 1.4 to 2.6 times greater compared with non-Maori, and the rate of mental disorder is 1.9 times greater for Maori. Similar findings are found in psychiatric data from first admissions to psychiatric hospitals documented in Table 2. Psychiatric morbidity, including alcohol and drug disorder, is about double in Maori compared with non-Maori.

MAORI ALCOHOL AND DRUG SERVICES

Maori alcohol and drug treatment services have been established over the past decade in New Zealand. The Alcohol Advisory Council of New Zealand (ALAC) has played a major role in supporting these developments, in line with government policies (New Zealand Government, 1989). The formation of these policies has been an attempt to improve the health status of Maori by providing services which are more accessible and culturally appropriate, with an underlying assumption that people will benefit from treatment which is based on practices, values, or beliefs that reflect special group membership (Closser and Blow, 1993).

Table 1.

New Zealand Public Hospital Discharges for Selected Conditions in 1992 (age-standardized rates per 10,000 population)[a]

Conditions	Maori	Non-Maori	Maori/non-Maori ratio
Neoplasm	121.7	84.8	1.4
Circulatory system disease	180.6	105.0	1.7
Respiratory system disease	299.0	115.0	2.6
Digestive system disease	155.2	105.2	1.5
Mental disorder	48.4	25.8	1.9
All causes	2,618.0	1,465.1	1.8

[a]Reproduced from *Hauora: Maori Standards of Health III* (Pomare, 1995) with kind permission from the Eru Pomare Maori Health Research Centre, Wellington, New Zealand.

Table 2.

Selected First Admission Diagnoses to Psychiatric Hospitals in 1992 (age-standardized rates per 10,000 population)[a]

	Diagnosis	Maori	Non-Maori	Maori/non-Maori ratio
Males	Alcohol abuse or dependence	5.5	2.7	2.0
	Drug abuse or dependence	2.6	1.1	2.4
	Schizophrenic psychosis	2.7	1.3	2.1
	All diagnoses	23.2	12.0	1.9
Females	Alcohol abuse or dependence	2.4	0.9	2.6
	Schizophrenic psychosis	2.0	0.8	2.5
	All diagnoses	18.0	10.1	1.8

[a]Reproduced from *Hauora: Maori Standards of Health III* (Pomare, 1995) with kind permission from the Eru Pomare Maori Health Research Centre, Wellington, New Zealand.

An important part of the therapy and care provided in Maori specific alcohol and drug treatment units is said to be to help Maori clients become reconnected with their Maori heritage and feel pride in being Maori. The term "cultural linkage" is coined here to describe this process. While there is at times a delicate balance between offering a "cultural" program and providing alcohol and drug treatment, staff in these units report that overemphasizing one to the detriment of the other is generally counterproductive, and that a balance of the two is optimal.

It is possible that the efficacy of "cultural linkage" may be dependent on its success at delivering certain key factors, identified (Vaillant, 1983) as important in achieving recovery from alcoholism and drug addiction; i.e., an increased source of unambivalently offered social support, new relationships, and a source of inspiration, hope, and enhanced self-esteem. These so-called nonspecific factors have been used to explain the perceived effectiveness of Alcoholics Anonymous (Vaillant, 1988) and may also be important elements underlying success of services designed to meet the needs of special populations (Closser and Blow, 1993) such as Maori.

PROBLEMS AND SOLUTIONS

There are a number of important issues related to the development of dedicated Maori alcohol and drug treatment services in New Zealand, which can be addressed by the following two questions.

1. What Are the Factors That Are Likely to Facilitate "Cultural Linkage" Programs and, Conversely, Which Ones Could Interfere?

Currently there is governmental support for both service development and research into dedicated Maori health services, including those for people with alcohol and drug problems. A critical problem, however, is the lack of a skilled Maori work force to manage clinical services or conduct research. Financial resources have the potential for being channeled into ineffective clinical services or research projects which lack the required skills and expertise to succeed.

Another restraint to the development of Maori services has been the influence of a strong abstinence movement within the New Zealand alcohol and drug treatment field, aligned with the Alcoholics Anonymous movement. Anything new, particularly if not espousing a strictly abstinence approach, has been viewed with suspicion. A parallel suspiciousness exists within the Maori community itself, regarding the appropriateness of Pakeha methods of healing and research to Maori. Maori comment that "our people have been researched and researched and still we suffer" is typical. This sentiment is elaborated in a recent paper (Cram, 1993) with the assertions that "one product of colonisation, has been the stream of Pakeha social scientists who have seen Maori communities as research prospects," and that "much research about Maori is merely descriptive, telling us what we already know yet not proposing any solutions or action that can be taken for change."

In time, an investigation of whether "cultural linkage" holds up in a controlled trial of treatment outcome, ideally with a randomized design, will be necessary. It is possible, however, that the same difficulty researchers have encountered investigating the apparent effectiveness of Alcoholics Anonymous (Heather and Robertson, 1989; Mattick and Jarvis, 1993) might also be encountered when attempting to research the effectiveness of a special cultural program where the people involved have strong emotional bonds with the treatment provided. Reluctance by the Maori community to apply scientific study to "cultural linkage" would risk further advance of optimal treatment for Maori with alcohol and drug-related problems.

Finally, there is considerable pressures on individual Maori who have talent and who are working hard to improve the current situation. These individuals often find themselves sandwiched between multiple non-Maori demands and overwhelming Maori expectations, and the potential for "burn out" is considerable.

A pragmatic solution to the paucity of Maori service and research resources is the forging of positive partnerships between key Maori and non-Maori workers in the field. This will allow the necessary knowledge and skills in service development and research to be tapped by Maori while "ownership"

of the process is retained and a skilled Maori work force developed. Patience and tolerance between Maori and non-Maori need to be fostered so that support and encouragement replace judgment and unrealistic expectations. This is particularly needed from non-Maori, who tend to have and control more of the resources available. An important strategy is to identify specific Maori individuals with leadership and ability for both Maori and non-Maori communities to nurture.

To date, while there has been no systematic evaluation to determine treatment efficacy of programs which are dedicated to treat special need populations such as Maori, there is some evidence to show that access has been improved by the provision of such programs (Institute of Medicine, 1990). This, at least, should be a positive starting point for encouragement and support for dedicated Maori services.

2. What Are Reasonable Process and Outcome Criteria for Success and Failure for "Cultural Linkage" Programs?

At the current time there is only anecdotal information available that suggests that cultural factors are important in the optimal treatment of Maori with alcohol and drug-related problems. Not only is there a total lack of instruments available to monitor the "cultural linkage" process, the process itself has not been described with any degree of precision. Work is required to identify both the outcomes sought through successful "cultural linkage" as well as key features of the process of "cultural linkage" so that reliable measures of these two aspects can be achieved. There may be certain components of treatment which are critical for the process of "cultural linkage" or which particularly enhance the process. It may also be that there are certain Maori with particular presenting problems who are best helped by such programs.

The Maori community will need to feel in control of the process of instrument development, so as to "own" the products of research. Instruments such as the General Alcoholics Anonymous Tools of Recovery (GAATOR) (Montgomery et al., 1991) or the Twelve-Step Participation Questionnaire (TSPQ) (Tonigan et al., 1990), developed to gauge the involvement of patients in the process of recovery from an Alcoholics Anonymous perspective, may be useful conceptually in the development of instruments that tap the process of "cultural linkage." Similarly, an instrument such as the Attitudes Towards Being a Lesbian Scale (Berry and Sellman, 1994), developed to measure the degree to which lesbian patients with alcohol and drug use associated problems were comfortable with being a lesbian, may be a useful starting point for the development of an instrument which measures a desired outcome from "cultural linkage," such as pride in being Maori.

There ought to be a priority given to research in this area at the current time, when there is a committment to trying to improve the health status of Maori in New Zealand. The development of research in this area is also significant internationally, as the treatment needs of indigenous peoples in other countries become an increasing area of concern and interest.

ACKNOWLEDGMENTS

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RESUMEN

Los Maorís son la gente indígena de Nueva Zelanda y sufren más problemas de salud, incluyendo alcohol y drogas por habitante comparado con la población Pakeha (no Maori). Una iniciativa para desarrollar dedicados programas para el tratamiento de alcohol y drogas, el cual ofrece "lazos culturales," está siendo llevado actualmente. Esta iniciativa esta basada en el principio de que reconociendo las necesidades culturales hace el tratamiento del alcohol y las drogas más efectivo para los Maorís que los programas generales principales los cuales no nombran específicamente estos problemas de especial necesidad. Todavía no hay información de estudlos controlados que identifiquen esta proposición. Los problemas relacionados al desarrollo de "lazos culturales" en Nueva Zelanda, son identificados y se sugieren soluciones junto con una futura dirección para la investigación en esta area.

RÉSUMÉ

La population indigène de la Nouvelle-Zélande est composée de Maoris. Comparés aux Pakehas (population non maorie), les Maoris présentent, par habitant, beaucoup plus de problèmes de santé, y compris alcoolisme et toxicomanie. La Nouvelle-Zélande vient de prendre actuellement l'initiative de développer des programmes concernant le traitement de l'alcoolisme et de la toxicomanie parmi les Maoris, tenant compte des "rapports culturels". Ce projet est basé sur le principe que, si l'on considère les "rapports culturels", le traitement de l'alcoolisme et de la toxicomanie chez les Maoris est plus efficace que celui basé sur des programmes généraux qui ne s'occupent pas

spécifiquement de ces besoins culturels. Jusqu'à présent il n'y a pas encore de données sur les études scientifiques faites sur ce sujet. Les principaux problèmes concernant le développement des programmes "rapports culturels" en Nouvelle-Zélande sont identifiés et des solutions ouvrant la voie à la recherche dans ce domaine sont suggérées.

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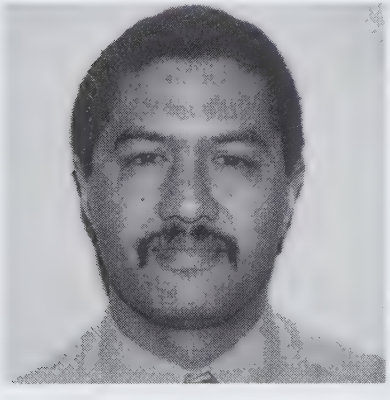

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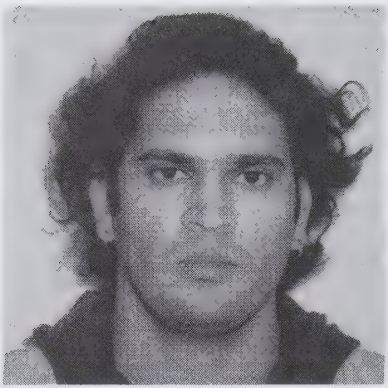

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Measurements, Instruments, Scales, and Tests

Reliability of Adolescent Self-Reported Pretreatment Alcohol and Other Drug Use

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ABSTRACT

This study is a preliminary examination of the reliability of adolescent self-reported pretreatment alcohol and other drug (AOD) use frequency. Assessments of self-reported pretreatment AOD use were conducted at admission and discharge (approximately a 1-month time period) at an adolescent drug misuser treatment program. The sample consisted of 197 male and female adolescents. There were statistically significant increases between admission and discharge assessments of pretreatment AOD use frequency. The greatest discrepancy was found for alcohol use, in which three-fourths (76%) of the sample reported a higher level of pretreatment alcohol use frequency at discharge assessment as compared to their admission assessment. Over one-third (35%) of the sample was found to have a significantly higher level of pretreatment alcohol use frequency at discharge assessment. The cause of this response discrepancy is unknown, but if it represents underreporting at admission, it may cause diagnostic and referral errors, as well as attenuate effect sizes in treatment outcome studies.

Key words. Adolescent drug use; Reliability and validity of self-report

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INTRODUCTION

It has been said that you only have to ask adolescents two questions to find out if they have a drug misuse problem: (a) Do you have a drug misuse problem? and (b) Did you lie when you answered the first question? This anecdote is, of course, an oversimplification of the very complex task of judging the veracity of an adolescent's self-report. Clinicians have long suspected that clients minimize their self-reports of alcohol and other drug (AOD) use history at admission assessment, particularly among clients who are forced or coerced into treatment (Hesselbrock et al., 1983). This may be more true of adolescents than adults, because they are more likely to be forced or coerced into treatment. Furthermore, clinicians also report that many clients admit to higher levels of pretreatment AOD use later in treatment than they reported at admission. The issue of trust of self-reports is not unique to the field of substance misuse, and is a concern of other disciplines, such as mental health and criminology.

The field of adolescent AOD misuse assessment research is in the early stages of development (Leccese and Waldron, 1994; Newcomb and Bentler, 1989). Although little is known about the reliability and validity of adolescent self-reported AOD use frequency at admission to treatment, it is critical for both clinical diagnosis and referral, and for pretreatment measures in treatment outcome studies (Aiken, 1986; Babor and Del Boca, 1992; Babor et al., 1987; Ekstrom et al., 1990; Hubbard et al., 1976; Sobell and Sobell, 1990; Winters et al., 1991). For example, diagnostic and referral decisions often hinge on the patient's self-reported history of AOD use and associated problems. Also, the effectiveness of treatment is often judged upon a comparison of pretreatment versus posttreatment self-reported AOD use frequency. The purpose of this study is to make a preliminary examination of the reliability of adolescent self-report data at admission to a drug misuser treatment program by comparing admission to discharge assessments of self-reported pretreatment AOD use frequency in an adolescent treatment sample. If differences are found, a second purpose is to test whether existing validity scales detect this discrepancy.

METHOD

A sample of 197 adolescents was administered an AOD use frequency assessment at admission and discharge from an adolescent treatment program (Stinchfield et al., 1994). Table 1 presents selected background characteristics.

The treatment program is a hospital-based inpatient program that is highly structured and based on a drug-free, Alcoholics Anonymous (AA) therapeutic approach. The two primary goals of the treatment program are to assist the

Table 1.

Selected Client Background Characteristics (N = 197)

Characteristics	%
Gender:	
Male	52.8
Female	47.2
Age:	
12–15	44.7
16–18	55.3
Race:	
White	80.8
American Indian	11.8
Other	7.4
Court-ordered treatment	13.8
Ever expelled or suspended from school	60.1
Preferred substance:	
Marijuana	51.3
Alcohol	31.7
Other	17.0
Family history of substance misuse	64.0
Previous substance misuser treatment	40.4
Previous mental health treatment	60.1
Victim of physical abuse	33.0
Victim of sexual abuse	23.6

adolescent in gaining a realistic picture of his/her present situation and the effects of drug misuse on his/her life; and to introduce the adolescent to the concepts and values of AA and instill the need for an ongoing recovery program. The primary treatment method is structured group therapy. The average length of treatment was 44 days (SD = 13) and the mode was 35 days.

The AOD use frequency measure used in this study is a component of the *Personal Experience Inventory* (PEI) (Winters and Henly, 1989). The PEI includes a measure of past 3-month AOD use frequency with a standard 7-point scale: 0, 1–2, 3–5, 6–9, 10–19, 20–39, and 40 or more occasions of AOD use (adapted from Johnston et al., 1985). This standard measure of AOD use frequency has exhibited satisfactory test–retest reliability in school samples (Hays et al., 1994; Hays and Huba, 1988; O'Malley et al., 1983). The PEI inquires about 12 different substances, but substances included in this study are limited to alcohol, marijuana, cocaine, LSD, inhalant, and amphetamine because 70% or more of the sample reported no use of tranquilizer, other psychedelic, other opiate, barbiturate, heroin, and Quaalude at both assessments. The PEI also

includes three validity scales: (a) Defensiveness; (b) Infrequency; and (c) Pattern Misfit. The Defensiveness Scale measures faking "good" tendencies and includes items adapted for adolescents from the Marlowe–Crowne Social Desirability Scale (Crowne and Marlow, 1960). The Infrequency Scale measures faking "bad" tendencies, along with inattentive or random responding, and includes items reflecting extremely unlikely AOD use behavior (e.g., obtained alcohol or drugs from a police officer). The Pattern Misfit Scale identifies unusual patterns of responses on the Personal Involvement with Chemicals Scale, which may indicate inattentive or random responding, or an actual, but atypical, chemical use pattern.

Participants were recruited between January 1989 and June 1990. At admission, clients were asked to participate in the study by the research manager, a 24-year-old female. Informed consent was obtained from adolescent clients and their accompanying parent or guardian. Participants were informed that their answers would be used for research purposes and would be kept confidential. The entire PEI (including past 3-month AOD use frequency) was administered on-site at the treatment program on the second or third day following admission. The research manager was instructed not to administer the admission assessment if the participant showed any signs of being intoxicated or "high." Assessment of past 3-month AOD use frequency was readministered at discharge. Participants were instructed to complete the AOD use frequency for the period of the 3 months before treatment. Therefore, the period of inquiry was the same for both assessments.

RESULTS

A MANOVA with repeated measures comparing admission to discharge assessments of all six AOD use frequencies was statistically significant ($F = 38.2$, $df = 6,182$, $p < .001$). Follow-up univariate comparisons of admission to discharge assessments of each AOD use frequency are presented in Table 2. All six substances showed a statistically significant increase, and alcohol use exhibited the greatest increase. Modest test–retest correlations ranged from .32 to .68.

In order to see the discrepancy between admission and discharge on an individual client level, a crosstabulation of alcohol use frequency is presented in Table 3. Three out of every four participants reported higher pretreatment alcohol use frequency at discharge than they reported at admission. The difference between admission and discharge assessments of pretreatment alcohol use frequency is most striking by comparing the number of participants reporting 40 or more occasions of use at admission ($n = 18$) and discharge ($n = 108$) which indicates a greater than fivefold increase.

Table 2.

Paired t-Tests and Correlations between Admission and Discharge Assessments of Three-Month Pretreatment AOD Use Frequency (N = 197)[a]

Substance	Admission mean (SD)	Discharge mean (SD)	*t*	*r*
Alcohol	2.98 (1.8)	4.89 (1.7)	13.4*	.34
Marijuana	3.42 (2.0)	4.83 (1.8)	10.4*	.52
LSD	0.87 (1.4)	2.06 (2.1)	9.7*	.60
Cocaine	0.86 (1.7)	1.55 (2.1)	6.3*	.68
Amphetamine	0.38 (0.9)	1.34 (1.9)	7.2*	.32
Inhalant	0.33 (1.0)	1.41 (2.0)	8.0*	.33

[a]AOD use frequency seven-point scale is: 0 = never; 1 = 1–2; 2 = 3–5; 3 = 6–9; 4 = 10–19; 5 = 20–39; and 6 = 40 or more occasions.
*$p < .001$.

There is always some measurement error associated with psychological instruments. The question in this comparison is whether the difference in scores between admission and discharge is greater than the variability due to measurement error. To answer this question, a reliable change index (RCI) (Jacobson and Truax, 1991) was computed to determine whether the alcohol use difference score between admission and discharge reflects more than the variability of the AOD use frequency measure. A significant difference between two testings for this 7-point alcohol use frequency scale is indicated by a change of three or more categories, based upon a 95% confidence interval RCI (Jacobson and Truax, 1991). The alcohol use RCI was computed using a test–

Table 3.

Crosstabulation of Admission and Discharge Assessments of 3-Month Pretreatment Alcohol Use Frequency (N = 197)

	Discharge							Row
Admission	0	1–2	3–5	6–9	10–19	20–39	40+	totals
0	5	1	3	1	2	1	7	20
1–2		4	1	3	4	5	15	32
3–5			1	1	6	6	14	28
6–9	1	1	2	2	6	6	14	32
10–19	1	1		1	4	9	24	40
20–39					3	4	20	27
40+	1					3	14	18
Column totals	8	7	7	8	25	34	108	197

retest reliability coefficient of .81 (Hays and Huba, 1988; O'Malley et al., 1983) and a standard deviation of 1.8 (see Table 2).

A frequency distribution of alcohol use difference scores between admission and discharge assessments is presented in Fig. 1. The admission alcohol use score was subtracted from the discharge score to obtain a difference score. This difference score represents the size of the change between admission and discharge in number of categories. That is, a score of 3 indicates that a participant's discharge score is three categories higher than his/her admission score. Figure 1 shows an approximately normal distribution of alcohol difference scores, but the mode is at a score of +2. Specifically, four (2%) participants reported significantly lower use at discharge assessment (a difference score between -3 to -6), 124 (63%) exhibited no significant differences (a difference score between -2 to 2), and 69 (35%) reported significantly higher use at discharge assessment (a difference score between 3 to 6). Similar patterns were found for other substances.

In order to determine whether this discrepancy could be detected by standard validity (i.e., faking) scales, correlations were computed between the three admission PEI Validity Scales and the alcohol use difference score. The alcohol use difference score was correlated $r = .00$ with the PEI Defensiveness Scale,

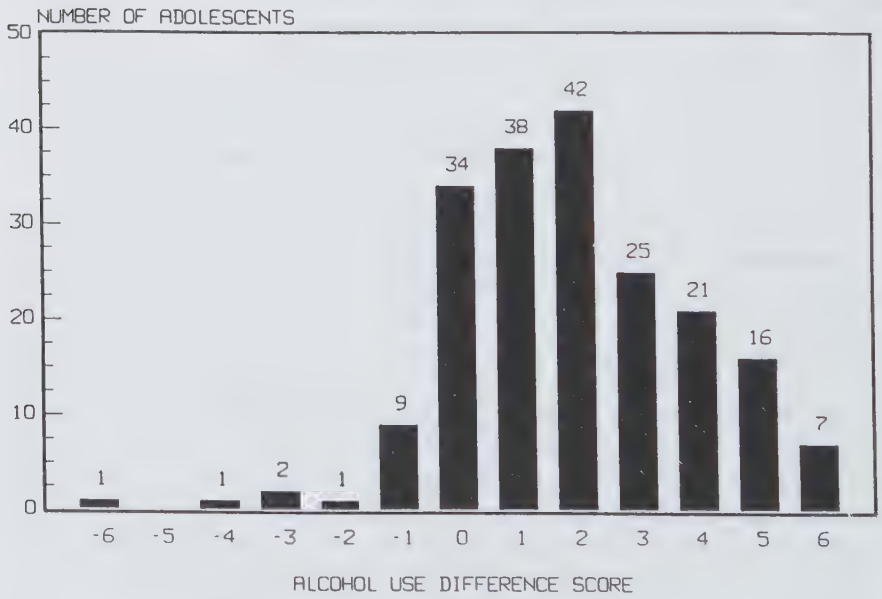

Fig. 1. Frequency distribution of alcohol use difference scores ($N = 197$).

$r = .07$ with the PEI Infrequency Scale, and $r = .11$ with the PEI Pattern Misfit Scale. The alcohol use difference score was also not correlated with gender ($r = .03$), age ($r = .04$), and length of treatment ($r = .03$).

DISCUSSION

This sample showed statistically significant increases between admission and discharge assessments of pretreatment AOD use for all six substances. The greatest discrepancy was found for alcohol use, in which 76% of the sample reported a higher level of pretreatment alcohol use frequency at discharge assessment as compared to their admission assessment. Over one-third (35%) of the sample reported a significantly higher pretreatment alcohol use score at discharge as compared to their report at admission.

It is unknown whether the admission or discharge scores are the most accurate data. This discrepancy is unlikely due to instrument unreliability because AOD use frequency measures have shown satisfactory test–retest reliability in school-based adolescent samples (Hays and Huba, 1988; O'Malley et al., 1983). Furthermore, if this difference were due to instrument unreliability, one would expect the errors to be randomly distributed, i.e., equal amounts of increases and decreases. But the discrepancies are not randomly distributed, rather they are heavily weighted toward higher use frequency reported at discharge and where a lower score at discharge, even by only one category, is a rare occurrence.

There are at least two plausible causes of this response discrepancy: (a) underreporting at admission or (b) overreporting at discharge. The first cause is plausible in light of the common clinical lore that drug misusers entering treatment, and particularly individuals who do not want to go to treatment (e.g., many adolescents), deny that they have a problem and minimize their drug misuse problem severity. But if treatment is successful in breaking down the patient's denial, they may become less defensive and more candid in their self-report of pretreatment AOD use frequency. Furthermore, some adolescents may be motivated to underreport their AOD use history because they want to hide their drug use from others (e.g., parents) and avoid consequences, such as treatment. The second cause is also plausible, particularly in adolescent treatment groups where exaggeration may be reinforced by a group norm where the greater one's past drug use, the higher one's status within the group.

This response discrepancy appears to evade detection by standard validity scales. These results corroborate Babor et al.'s (1987) conclusion that the Marlowe–Crowne Social Desirability Scale is not helpful in determining the validity of self-report in alcoholic samples. A limitation of this study is the use of a rather simple measure of AOD use frequency. More accurate reports may

be obtained using more sophisticated instruments that: (a) ask about precise, observable AOD use behavior; (b) minimize subjective inferences and mental averaging; and (c) minimize the time period for retrospection.

If this response discrepancy is due to underreporting at admission, it may cause diagnostic and referral errors, namely false negatives, and may attenuate effect sizes in treatment outcome studies that compare posttreatment to pretreatment measures. Future research should attempt to identify and control this apparent response distortion in adolescent self-report of pretreatment substance use.

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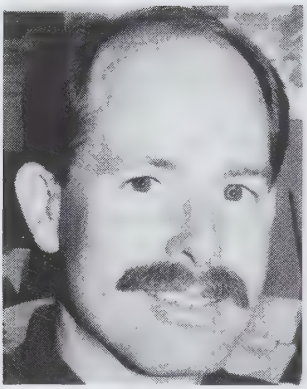
RESUMEN

Este estudio es un examen preliminar de la integridad del informe dado por el adolescente acerca de la frecuencia del uso de alcohol y otras drogas (AOD) antes del tratamiento. Evaluaciones del informe sobre AOD antes del tratamiento se llevaron a cabo durante la entrada y salida (aproximadamente un periodo de un mes) de un programa de tratamiento del maluso de drogas para adolescentes. La muestra consista de 197 chicos y chicas adolescentes. Hubo aumentos estadasticamente significantes entre las evaluaciones de la frequencia de uso AOD antes del tratamiento de la entrada y de la salida. La diferencia más grande se encontro en el uso de alcohol, en el cual tres cuartos (76%) de la muestra reportaron un nivel mayor de frecuencia en el uso de alcohol antes del tratamiento en la evaluacion a la salida comparada con la evaluacion a la entrada. Más de un tercio (35%) de la muestra tuvo un significativo nivel mayor de la frecuencia en el uso de alcohol antes del tratamiento durante la evaluacion a la salida. La causa de esta diferencia en respuestas es desconocida; pero si esto representa un informe inferior al real a la entrade, puede causar errores en el diagnostico y referencia del paciente, asi como disminuir las medidas del efecto en estudios del resultado del tratamiento.

THE AUTHOR



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Prevention Programs

Wat Thamkrabok: A Buddhist Drug Rehabilitation Program in Thailand

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ABSTRACT

Since 1959 Wat Thamkrabok, a Buddhist monastery in Thailand, has been conducting a drug addiction rehabilitation program which claims a 70% success rate. The program is known for its use of unconventional methods, such as inducing vomiting to relieve "cravings" for drugs, herbal saunas, strict discipline, an emphasis on Buddhism, and a sacred vow to never again use drugs. This is a descriptive study based on observations and interviews (mostly with foreigners) made at the monastery. While it was not possible to evaluate claims of success, there were several interesting aspects of the program which emerged. Vomiting was reported to be effective in reducing "craving," and participants seemed to have a positive regard for the program, but there were some serious concerns raised about health risks and the coercive nature of the program.

Key words: Drug addiction; Rehabilitation; Buddhism; Thailand

INTRODUCTION

The drug rehabilitation program at Wat Thamkrabok (Temple of the Pipe Cave) has achieved notoriety recently because of its claim of a phenomenally high success rate: over 70% are cured of addiction to heroin and other drugs (Miracle Worker, 1994; Flamm, 1993). The program is based on Buddhist

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teachings and is known for its use of rather unconventional methods to treat addictions. These include herbal medicines which induce vomiting in order to alleviate the "craving" for heroin, herbal saunas, a supportive but disciplined environment under the care and control of monks, and a pledge ceremony in which addicts make a sacred vow (*sajja*) to the Buddha to forever quit addictive drugs. This paper is a description of the rehabilitation program based on observations and interviews made on two occasions when I visited the monastery; the first in February 1995 and the second visit in February 1996.

Wat Thamkrabok is a Buddhist monastery located about 130 kilometers north of Bangkok in Saraburi Province, Thailand. Upon first arriving at the Wat, I was impressed by the size of the compound and by the exotic surroundings which featured several large gold images of the Buddha (Fig. 1.) Around the vicinity of the Wat were many apparently vacant buildings, tracts of bungalows, fruit orchards, and a large settlement of several thousand Hmong people. As I entered the temple area I noticed an enclosed compound occupied primarily by young Thai males, uniformly dressed in red khaki pants, who were sitting around listening to a rock band. I learned later these were program participants and the band members were former drug addicts that had

Fig. 1. Buddha images at the temple.

stayed on to work at the monastery. Outside of the compound were several concession stands where visitors were sitting and talking.

DESCRIPTION OF THE REHABILITATION PROGRAM

At the business office, where newcomers and visitors are officially received, I was given some literature about the program written in English. One pamphlet, entitled *Drug Addiction Rehabilitation Courses* (Wat Thamkrabok, 1991), was designed for foreign applicants, and contained an endorsement by an Australian airline and a telephone number for the International Coordinator of Courses in Australia. This pamphlet begins with a letter, entitled "My Personal Message to You," from the founder of the program, Abbot (Phra Ajarn) Chamroon Parnchand (Fig. 2) (Wat Thamkrabok, 1991):

Fig. 2. Phra Ajarn Chamroom Parnchand, abbot of Wat Thamkrabok.

> Dear Friend,
> If you or a member of your family have succumbed to temptation and are addicted to a drug or suffer from alcoholism, we can TOGETHER take the steps to cure that addiction thus enabling you to bring DIGNITY and SELF RESPECT back into your life.
> Whatever drug you rely on, however long it has been—we can, providing you make the commitment, help you towards spending the remainder of your life FREE from that addiction.
> I invite you to read the entire pamphlet and then take the first step which could restore not only your health and happiness, it will also remove the fears and pressures from those who love you.
> But all this will only happen if you are prepared to make that commitment.
> (Signed by Phra Ajarn Chamroon Parnchand)
> ABBOT
> THAMKRABOK MONASTERY (p. 2)

The brochure also explains that "no guarantee is given but consider—over 150,000 have taken the course with a 70% plus success rate" (p. 3). The definition of "success" is not given, although lifelong abstinence is clearly a major objective of the program. The stated goal of the program is as follows: "During the course you will be isolated from the outside world. When you return to your home we pray and trust that you will arrive, FULLY CURED, head held high—with dignity restored" (Wat Thamkrabok, 1991, p. 5).

The rules of the program are strictly enforced, and consist of the following: "a) Complete abstinence from drugs causing dependence, b) obedience to the monk, c) refrain from any disruptive behaviour, and d) remain within the compound of the temple through the admission period without any excuse" (Wat Thamkrabok, n.d., pp. 2–3). There is no cost to attend the program; they rely on donations for support. It costs less than US$3 per day to feed and house each participant. Participants are given 20 baht (80 cents) worth of coupons per day to buy personal supplies such as cigarettes and toilet articles. However, foreigners who accept referral packages from representatives abroad must pay for referral, insurance, travel, medical, accommodation, meals, treatment, and other services (Wat Thamkrabok, 1991).

The rehabilitation program has been in operation for over 36 years. Admission statistics displayed in the business office indicate that over the past three years there have been between 4,000 and 5,000 annual intakes, which corresponds to between 300 to 400 per month. At the time of my first visit (February 1995) the majority of admissions were Thai males (91%), mostly aged in their twenties and late teens. Thai females (7%) were under-represented in comparison with national statistics which have shown that approximately

20% of treatment admissions are female. Also, at that time there were only three foreigners (1%), although typically foreigners comprise about 5% of the population.

The administrative staff do follow-up surveys by mailing out cards to addicts or their relatives, or in some cases by sending representatives of the monastery to visit village headmen during the third to twelfth month after release. Their findings have shown that approximately 70% are living drug-free and that 25% have returned to addiction; the remaining 5% are not found (Yogachandra, 1978).

The program is administered by the monks and ex-addict assistants. There are about 300 monks living at Wat Thamkrabok, of which half are ex-addicts.

Admission to the Program

During intake, clients are interviewed to determine whether they are coming under voluntary motivation and whether they are physically able to undergo the treatment program (Wat Thamkrabok, n.d.). Applicants who are ill or who have not come of their own free will are not admitted. Those accepted into the program are signed in by the friend or family member who brought them to the monastery. During their stay at the program, only that person (or one of four others, whose names are listed) will be permitted to pay a weekly visit. Upon completing the program they must be signed out by the same person who signed them in, and in some cases addicts are required to stay for an additional length of time at the request of family members.

"Spiritual treatment" is the primary approach to rehabilitation, and clients must make a vow (*sajja*) of lifetime abstinence from drugs during a religious ceremony held on the very first evening of their stay (Wat Thamkrabok, n.d.). A warning is given for those who fail: "If he breaks this vow, the spirits will punish him" (Wat Thamkrabok, n.d., p. 3). The finality of their decision is further reinforced by informing them that they can only attend the course one time in their lives (Flamm, 1993). On the evening of the first day, after sundown, the new patients are taken to an open shrine where they make the vow in front of the image of the Buddha and in the presence of a monk. Those who are not Buddhist may make the pledge according to their own beliefs. Following this ceremony, the addict attends his/her first vomiting session.

Detoxification Phase (Day 1 through Day 5)

The program is perhaps best known for its use of vomiting in order to relieve the "craving" for drugs (Fig. 3). The vomiting procedure has been described as follows: A "dose of herbal liquid is given every day for five days.

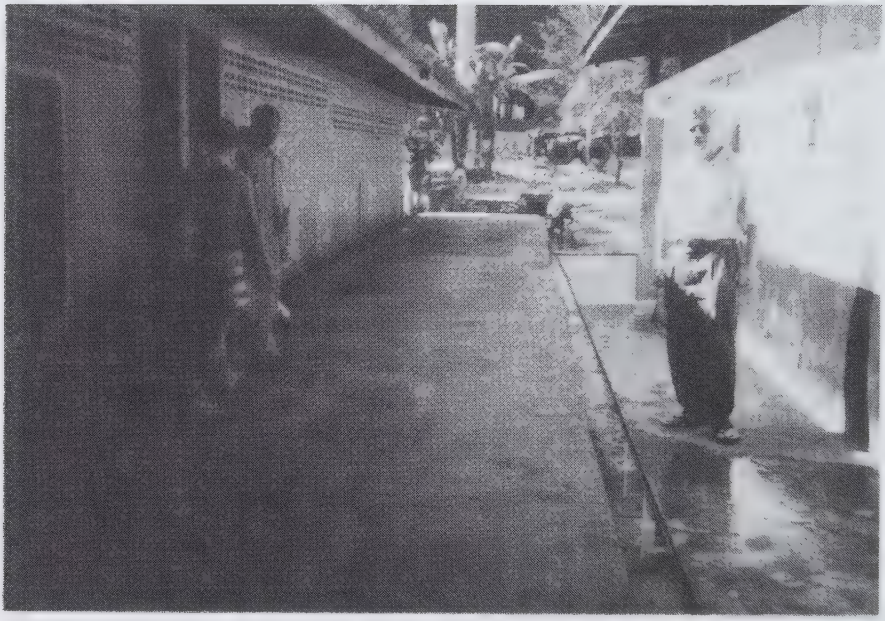

Fig. 3. Vomiting area.

A dark strong smelling herbal mixture is taken with large quantity of water which induces profound vomiting. Peers of client [*sic*] provide moral support by cheering and singing spiritual songs" (Wat Thamkrabok, n.d., p. 3). Severe vomiting, it is explained, is therapeutic because it causes physical weakness which "renders good sleep." I was told that vomiting was performed every morning, but other accounts I have read mention that vomiting is done a total of nine times, once on the evening of the first day, and then twice daily, morning and evening, during the next four days (Flamm, 1993).

I was able to personally witness the vomiting ritual early one morning. I arrived at 6:30 a.m., after the monks had just given out the medicine to each of the addicts. I observed about 10 addicts, young men and women kneeling on the pavement, who would take a dose of a dark-brown liquid medicine from a small cup, followed by copious amounts of water. They would then vomit up the liquid into a basin. This was repeated several times and the whole ritual lasted approximately 20 to 30 minutes. Program participants who had completed the detoxification phase stood around and chanted slogans to encourage and assist the newcomers. There seemed to be an air of excitement and a strong expectation that the newcomer do a thorough job of vomiting. For ex-

ample, I observed a Thai women in her early twenties who was receiving a lot of attention from more experienced participants, particularly from a female friend who kept encouraging her to try even harder. The peer support and encouragement seemed to be an important component of the ritual.

The detoxification phase is the most difficult, after which it gets progressively easier, as explained by the abbot: "The 36th hour after admission is when many of the patients get the urge to leave, but few get very far. Their knowledge of their vow and of their desire to quit usually brings them back. The crisis period of these first few days passes and by the 48th hour they begin to feel cured" (Flamm, 1993, p. 26).

Herbal saunas are given every afternoon in order to reduce pain in the muscles and bones and to induce relaxation (Fig. 4) (Wat Thamkrabok, n.d.). During my visits I observed groups of addicts clad only in their loin cloths (*pakama*), traditionally worn by Thais for bathing, walking in single file to the sauna house each afternoon between 2:00 and 4:00 p.m. They would take turns going into the smoke-filled sauna in which large bundles of green herbs were smouldering over fires. This caused them to perspire heavily after which they would rinse off with cool water.

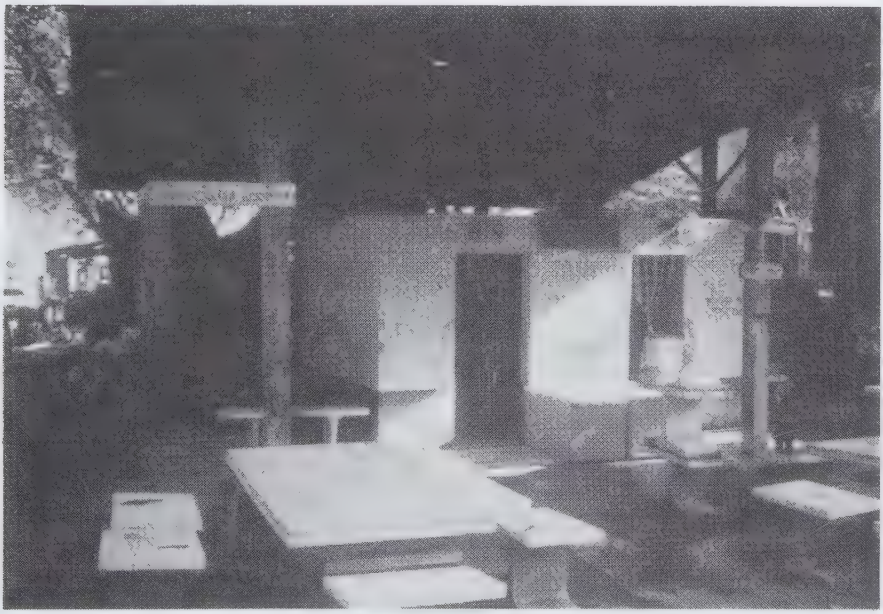

Fig. 4. Herbal sauna.

Recovery Phase (Day 6 through Day 10)

Following the first five days of detoxification, the second five days are referred to as the "recovery phase," during which the client is allowed to rest and recover from physical exhaustion (Wat Thamkrabok, n.d.). They are moved out of the locked detoxification ward to more comfortable quarters and are free to move about. During this phase the monks teach Buddhist doctrine and encourage participants to share and reflect on their experiences (Fig. 5). At the conclusion of the 10-day program the participants reaffirm their vows to abstain from drugs, after which they are free to leave (unless they have contracted for a longer stay).

Further Rehabilitation

It is recommended that most addicts stay beyond the 10-day basic program for periods of one to six months during which they pursue vocational or religious training. In addition, they are expected to do work assignments which are given out each day by the monks. Some chose to be ordained as monks and stay on permanently to further the work of the monastery.

Fig. 5. Program participants awaiting instructions from monks.

INTERVIEWS: FEBRUARY 1995

Phra Ajarn Chamroon Parnchand

Phra Ajarn Chamroon Parnchand, the abbot and founder of the program, is an ex-cop from Bangkok who had become disenchanted with the corruption in the legal system (Flamm, 1993). He was ordained a monk in 1953, and four years later, together with his brother and aunt, Mian, a lay nun, founded Wat Thamkrabok. It was an ideal spot for meditation because of the secluded caves. They took the vows of the order of *Tudong* monks, who wear brown robes, travel only on foot, and who do annual pilgrimages during the dry season. The temple grew in size, and following the Thai government's ban on opium, addicts began to come to the monastery for help in overcoming their addiction. Although Ajarn Chamroon did not have experience with the treatment of opium addiction, he decided to ask addicts to take the sacred vow, called *sajja*, and to eat the lotus flower bud saying "The lotus is a sacred flower. Whenever you have the urge to take opium, chew on the lotus bud instead" (Flamm, 1993, p. 25).

The abbot and his aunt, Mian, developed a special herbal medicine to treat addiction; the formula, which remains a secret, has been perfected over the years. The rehabilitation program has been in operation for more than 36 years and is currently treating close to 5,000 addicts per year. Through the years there have been numerous financial difficulties, and the monastery has even had to close for short periods due to lack of funds. Ajarn Chamroon is also referred to as *Luang Paw* (Reverend Father) Magsaysay in reference to the fact that he was awarded the prestigious Magsaysay award in 1975, by which time he had already treated 57,000 addicts (Miracle Worker, 1994). This greatly added to the popularity of the program (Flamm, 1993).

He received me in his office where we spoke in Thai for about 20 minutes. He impressed me as being a kind and gentle man, and still energetic for his 68 years of age. I asked him about the rationale of giving the herbal emetic, and he told me that the medicine was used to cleanse the body of drugs, which must be removed from deep down in "the bones." Following this, the addict must rest and regain physical strength. Then the battle becomes primarily a spiritual one. The herbal preparation comes from herbs gathered in the vicinity and some from Chiang Rai, Thailand.

He then spoke about the economics of the opium and heroin trade and about Kuhn Sa, the notorious drug lord, whom he knew personally and had talked with on several occasions in hopes of persuading him to quit the heroin trade. (It should be noted that between my first and second visits Kuhn Sa had in fact surrendered his opium-producing stronghold in Burma.) Most of the heroin, he told me, was now coming from Yunnan province in China. There

were many hill tribe peoples living in China who make their living by growing opium poppies.

When asked about the success rate of the program, he said that he saw few failures and that the actual success rate was probably higher than 70%. The program was applicable to foreigners; many have already been successfully treated. The abbot then granted me permission to enter the compound to observe the program, interview some addicts, and take photos.

Bill

Upon entering the compound I met an Australian man, whom I shall call Bill, who appeared to be in his early thirties. He was a very friendly chap and seemed to be very interested in talking, perhaps because there were few persons with whom he could converse in English. We talked for an hour or so during which time he candidly related his story and his impressions about the program. Bill had been addicted to heroin and had tried many other treatment programs, like methadone maintenance, counseling, and Narcotics Anonymous, all of which had been unsuccessful. So he decided to come to Thailand, which he had visited before as a tourist, and try this cure. He signed up for only 10 days and was on his seventh day at the time of our meeting; he had finished the five-day detoxification phase already and had entered the rehabilitation phase. He explained that although it is recommended to stay for 30 days (Wat Thamkrabok, 1991), exceptions are made for foreigners.

Bill said that his experience at the temple was a real "shock." If he had known what was going to happen he would never have entered, although at present he was not sorry that he had done so. He felt that this program might be too much of a shock for many foreigners, but that he was able to endure it because he had studied "focusing," a self-help therapy based on the idea that people choose their own reality. By using this technique he was able to make the experience a positive one and learn from it.

Bill then described the alarming case of a young German man who had arrived two or three days previously. He had become very paranoid and violent, and was trembling uncontrollably, apparently in a state of delirium, and was being physically restrained at that time. It was thought that he had been on other drugs, like cocaine, which might have intensified his paranoia. The strangeness of the surroundings and the people—most of whom cannot speak English—the confinement, and the vomiting procedure may have contributed to the paranoia, and Bill thought that the program staff could have reduced his alienation by having someone on hand who could speak English. Also, he felt that a medical doctor should screen such persons and refer them to a hospital.

While Bill and I were speaking I observed a German woman who appeared to be in her thirties. He said that she talked to herself all the time and was pretty "crazy." The program staff had chained an automobile tire to her ankle in order to prevent her from straying off or trying to leave. When I observed her she was muttering to herself, gesticulating, and at one point began gyrating as if she were dancing. She also made a lot of facial gestures of a comical nature. She was generously passing out cigarettes to some Thai males sitting near to her, who seemed amused by her.

I questioned Bill further about his experience in the program, and he told me that although there were some unpleasant aspects of the experience, such as confinement and rather harsh conditions, he thought that it was of good therapeutic value. Indeed, the unpleasantness and shock seemed to have been necessary to force self-confrontation. In his view, participants are essentially stripped of their masks and habitual ways of avoiding reality (drugs, alcohol, sex, entertainment, work, relationships, etc.). He reckoned that without being forced into it he would never voluntarily agree to undergo such a process. He felt that if he could survive this experience he could do just about anything—staying off drugs would be easy compared to undergoing this harsh experience. Bill's description of the program made it sound a bit like an initiation rite at a boot camp.

Bill thought that the camaraderie that occurs between other addicts coming in at the same time was a very positive aspect of the program. There was a sense of doing this thing "together" and of helping one another. Members who had been there longer were expected to help newcomers and took pride in that role. Thai addicts showed much reverence and respect for the Buddhist monks, which fostered acceptance of the program. Perhaps in a western setting there would not be similar respect for caregivers.

Regarding the vomiting ritual, Bill said it really did seem to reduce his "craving" for heroin. Although it was somewhat unpleasant, he had actually found himself looking forward to it each morning.

Mike

Bill told me of a newcomer, a young British man whom we shall call Mike, who had been in the program only four days. Mike had a very negative attitude and had tried to withdraw but was not allowed to leave the program. Bill offered to take me back to the detoxification area where Mike was confined. The detoxification lockup was a large room with bars on the windows and locked doors, with what appeared to be about 50 addicts sitting or laying around on mats. Mike and another Caucasian fellow (who remained

quiet throughout) came over to the gate, and we talked for about 30 minutes during which time he told me his story.

Mike had signed up for a 20-day period of treatment at the suggestion of his mother who had seen a television documentary in the UK about Wat Thamkrabok. He had been living in Thailand and had just been given an ultimatum by a significant other to either "get straight or leave." He said he had run out of veins for injecting and desperately wanted to quit. The last drug he had used was methadone which he had been injecting from vials, and he was also taking diazepam. He had previously tried other treatment programs and had once achieved one full year of abstinence, of which he was very proud, after completing a twelve-step-based rehabilitation program followed by attendance at Narcotics Anonymous meetings in the UK.

Mike felt like he was in prison and was livid about not being able to leave. He was told that if he did leave, the staff would report him to the police. "The pamphlet says you can leave the program," Mike exclaimed. However, I examined the brochure, which actually only states that one can obtain a 70–90% refund if he/she *cancels*, which is not the same as saying that one can leave after entering. In fact, the rules given in the brochure state that: "You will not be permitted to leave the precincts of the Monastery during the course" (Wat Thamkrabok, 1991, p. 3). Both Mike and Bill had not understood the rules when they entered, and they felt that it would be advisable for the program staff to emphasize these conditions *before* applicants signed the contracts. (Very few program staff or participants speak English, which may have been the cause of these misunderstandings.)

Mike was very resentful about the program and said he just wanted to get out and use heroin again. He said he wished to enter a more traditional type of program, like the twelve-step program in which he had achieved one year of abstinence. Bill was trying to encourage Mike to make the best of the situation and use the opportunity in a positive way as a learning experience.

Lek

I spoke with a Thai male ex-addict, whom I will call Lek, who had stayed on at the monastery for about 6 months as a staff member. Lek was a Thai Muslim, unlike most Thais who are Buddhist. He described how he had been so thin when he first arrived, weighing only 47 kilograms, whereas now his weight was more than 70 kilograms. He felt much stronger and seemed to be quite proud of how his strength had returned. Lek was obviously well liked and respected by the newer addicts with whom he was talking. It did not seem that his religious differences interfered with either his acceptance of the pro-

gram or acceptance by other addicts. He seemed to be acting as a positive role model with whom the newer addicts could identify.

While inside the compound I observed that the interactions between the Thai participants and the monks were positive, friendly, and respectful. These interactions were of a more informal nature and seemed to involve humor and polite conversation. Participants and staff seemed occupied with their various duties but there was not an observable sense of stress or coercion. The atmosphere was relaxed and peaceful.

INTERVIEWS: FEBRUARY 1996

During my second visit I had the opportunity to stay in the dormitory with several European men who had just completed the 10-day program and who had decided to stay a while longer at the monastery. There were about five or six staying in the dorm at that time, all appearing to be in their late twenties or thirties, and all were from either Germany or Switzerland. They explained that the Wat Thamkrabok program was actually quite well known in Germany and Switzerland. (One of them mentioned that there were businessmen who were, in his opinion, exploiting the program and addicts in order to make handsome profits by charging an exorbitant sum of 50,000 German Marks for a six-month stay, which included several return airfares to escort addicts to and from Thailand, expenses, donations to the monastery, and professional fees.)

All of the men had a positive regard for the program and felt it was effective, with the possible exception of one who had been a "heavy user" of ganja (cannabis). He was withdrawn and uncommunicative and spent most of his time watching television. When asked about his stay at the monastery, he said he had been there for six months which he felt he was "too long." The others were primarily heroin addicts. Three of them had just been on vacation at Pattaya, a beach resort popular among German male tourists. All of the men smoked tobacco cigarettes very heavily. (Actually, a general observation I made was that almost everyone smoked at the Wat, including many of the monks.)

During my second visit I conducted two formal interviews, one with an American, Monk Gordon, who had spent many years at Wat Thamkrabok, and the other with a German addict.

Monk Gordon

Monk Gordon is an American ex-patriate who prior to joining the monastery had fought in Vietnam and then later as a mercenary soldier in the Middle East and other places. He told me his story of how he came by Wat

Thamkrabok 18 years ago and liked what he saw. He seemed to have really become one of the family; indeed, it was hard to tell from appearances that he was not one of the Thai monks. He was not an addict himself, but he wanted to join in the work there to save a few lives and even out the score for his past. His manner was very direct and abrupt; accordingly, he sat me down to tell me just how the program works. He said that what happened at the monastery was a kind of "brain washing," that addicts needed to be reprogrammed to behave like "robots." He said they even used tapes with messages that the addicts listened to during their sleep in order to reprogram their minds. They used trance and meditation to achieve control of mind over matter. He used the example of cigarette smoking and cancer to illustrate: smoking will only cause cancer for those who believe it will. The herbal medicine was only 20% of the cure, used to relieve the physical "craving;" the other 80% of the battle was mental. The addicts were only given "one chance" at Thamkrabok (later I learned that they do readmit some returning addicts.) Quite dramatically, he said that addicts either got the program and straightened out or "died."

He went on to explain that the staff worked the addicts pretty hard and kept them busy from 5:00 a.m. to midnight. The monastery has its own security force, consisting of monks, and they can get pretty tough. They beat those who violate the rules—for example, stealing, fighting, showing disrespect to monks—with a bamboo cane, especially monks who get out of line. Also they use chains to restrain addicts who become unmanageable or who want to leave. I asked Monk Gordon about the addict from England (Mike), whom I had interviewed during my first visit, and who had been quite upset about being confined in the program. Monk Gordon was able to recall Mike's case and informed me that his story had a tragic ending: following his release from the program, Mike returned to drug use and had died. Monk Gordon didn't seem surprised; indeed, I later learned that there is a belief prevalent at the monastery that if one makes the sacred vow and breaks it the "spirits" would retaliate and punish the individual (as stated in the brochure discussed above), even to the point of death.

Monk Gordon said that the program worked for any drug: crack cocaine, heroin, alcohol, speed, etc. At that time there were 15,000 Hmongs from Northern Thailand who were there to kick their opium addiction (many were family members who accompanied the addict.) He explained that the name of the Wat, Thamkrabok, means temple of the pipe cave, which refers to the opium pipe.

I asked Monk Gordon about the 70% success rate, and he explained that the monastery has its own follow-up system whereby addicts all return to visit or send a friend or a message concerning their progress in recovery. The suc-

cess rate was around 70% according to their statistics, which he thought were accurate because of their ability to make contact with nearly all program graduates.

Max

I was able to speak for several hours with a young German addict, whom I will refer to as Max, who shared with me many of his impressions and reflections about the program. Max had recently finished the 10-day program and was staying a while longer at the monastery before returning home to Germany. He had tried several times to stop his heroin use, but did not find the treatment programs in Germany to be satisfactory. They didn't seem to address the "craving" and mental obsession of heroin withdrawal, and it just seemed too difficult for him. A friend of his had returned from Wat Thamkrabok a few months earlier and had recommended it to him. Max said he came to the monastery on his own rather than through a professional referral. He was particularly interested in the potential for spiritual development at the monastery.

I asked Max about his experiences at Wat Thamkrabok and he said that it had been very beneficial. He did the standard 10-day program, 5 days of detoxification and 5 days of rehabilitation. He said that beyond the basic detox there was no real program for foreigners, simply because there was nobody there at that time to offer counseling or teaching in English or German. In the past there have been foreigners from Europe who stayed on as monks and helped foreigners. Consequently, he felt that staying longer than 10 days would not be beneficial for foreigners—he couldn't really comment on behalf of the Thais, although he said that they seemed to have favorable attitudes toward the program. An important factor, in his opinion, was the holiness of the abbot, who was highly regarded in Thailand.

Max said emphatically that the herbal medicines—both the emetic and another herbal tonic—helped him tremendously. He said he had not expected the medicines to have such an effect. In Germany he could never endure detoxification because the "craving" and pain were so terrible. Also, he found the saunas to be very soothing and relaxing. He had difficulty sleeping while inside and was only just regaining his ability to sleep soundly. Regarding the experience inside the program, Max said it was rough: the conditions were unsanitary, uncomfortable, and he couldn't get much sleep, especially the first 5 days. The monks treated addicts who broke the rules very roughly and in cases where participants broke a serious rule, like stealing from another, they would chain the person in the middle of the room and kick and beat him. Max was never threatened or treated this way, however.

Max had concerns about the lack of professional medical care at the monastery. He felt that it was probably safe for the "pure" heroin addict, but he had doubts about alcoholics and polydrug abusers. He had heard that a couple of months prior to his arrival an alcoholic had experienced seizures and died. Also, he personally observed a case where a German alcoholic had an epileptic-type seizure and the only treatment given by the monks was a liberal anointing of Tiger Balm (a topical aromatic ointment containing eucalyptus and other herbs which is used to relieve muscle pain, sinus congestion, or as a smelling salt) which revived him. Max observed another case where a man slipped in the shower area, fell unconscious, and was again revived by Tiger Balm.

I asked Max about the "brainwashing" that Monk Gordon spoke of, and he said that he not observed any overt cases of brainwashing, per se, although he said the treatment program was "like being brainwashed" or "programmed" because one was under the direct supervision of the monks at all times. He suggested that those who stayed for longer periods, beyond the 10-day program, would probably become gradually "brainwashed" to think and act like the monks. For those who stayed beyond the 10-day program, work assignments were given out each day to keep the addicts busy.

With regard to the sacred vow, Max said that he was able to make the vow according to his own beliefs. Part of the process was to admit his wrongs and ask forgiveness for what he had done to others. He related a story he had heard that in times past the medicine was more potent and if one returned to heroin use he/she would die. Currently, they used a different formula, which was not so potent. The way he described it made it sound like a curse: death to those who break the sacred vow.

Max said he thought that the program functioned as a "shock treatment," and that he would recommend it for some foreigners, although he thought it would be too harsh and difficult for most addicts. He felt that he was free now from his addiction to heroin, which he thought was quite an accomplishment for only 10 days! Max intended to go on to study meditation at one of the meditation centers in Thailand, where they conducted the program in English, and then to return home to find work.

DISCUSSION

The rehabilitation program at Wat Thamkrabok raises some interesting points for discussion concerning treatment for addictions. Although it is an indigenous program based on Thai culture and Buddhism, there are some similarities with traditional programs. For example, the detoxification procedure resembles the cold turkey approach seen in other countries, where addicts are locked in cells to suffer through the pains of withdrawal. Also, the employ-

ment of program graduates to stay on as staff and the emphasis on discipline are practiced by therapeutic communities in the UK and US. Furthermore, the moral dimension of the program is similar to that found in other religion-based programs. There were many features, however, which are very different from other rehabilitation programs, such as purging and herbal saunas used during detoxification, shock and discipline, Buddhism, and the sacred vow.

Purging and Herbal Saunas

The addicts I interviewed all agreed that purging *did* relieve "craving" for drugs, and the reputation of the program both in Thailand and abroad attests to widespread belief in its effectiveness. But how does it work? In an interview (Flamm, 1993, p. 25) the abbot was quoted as giving the following therapeutic benefits of vomiting:

> Nausea is a prime symptom of drug withdrawal, the symptom which is consistently feared by incoming patients. Overcoming nausea by causing severe vomiting is part of the treatment and makes a deep impression upon the patient. First it gives him or her the feeling of having effectively purged all the narcotics. Second, severe vomiting masks over the abstinence syndrome, so most patients tolerate and forget about withdrawal symptoms. Third, it causes physical weakness; and fourth, it is perceived as a kind of "punishment" and is expected to have a chastening effect that would prevent an ex-addict from relapsing into the old habit.

The notion of purging narcotics from the gastrointestinal system by means of vomiting is not consistent with western medical views of addiction, which focus on the presence of drugs in the bloodstream and the effects of drugs on the central nervous system. Nevertheless, purging could be effective in relieving "craving," either physically or as a symbolically meaningful and emotionally cathartic act. Regarding the abbot's second point, perhaps profound vomiting does mask the abstinence syndrome, much like the familiar case of the tobacco smoker who loses all interest in smoking—indeed is repulsed by the thought of smoking—during a severe bout of influenza. In support of this, my informants said they felt very weak and tired during the first few days of detoxification, and this seemed to take the focus away from the withdrawal symptoms they would normally have suffered. Regarding the fourth point, many spoke of the detoxification phase as a painful experience, one which they would not want to have to repeat. Perhaps the intensity and pain creates a lasting memory that adds emphasis to their resolve to avoid drugs in the future.

In the west, emetic drugs have been used in aversive-conditioning procedures, but that would seem to be according to an altogether different paradigm. Typically, in aversive conditioning the drug (conditioned stimulus) is paired with exposure to the emetic (unconditioned stimulus). After conditioning has occurred, subsequent encounters with the drug will induce nausea (conditioned response). The patient would then be less likely to return to drug use. At Wat Thamkrabok there is no explicit procedure of pairing nausea with exposure to stimuli associated with drug use. However, during the purging ritual antidrug slogans are chanted while the addicts are in the act of vomiting, and it could be argued that some kind of conditioning of nausea to drug-related stimuli may be occurring. However, this is highly speculative.

There have been concerns raised by health authorities in Thailand about the legality and appropriateness of persons without medical qualifications administering treatment (Miracle Worker, 1994). Also, my informants mentioned cases of participants who had seizures, and the case of one German alcoholic who had died. In addition to the possibility of seizures, frequent vomiting could cause electrolyte imbalances which might lead to cardiac arrest, as is observed sometimes among bulimics. This problem could also be compounded by the possibility of dehydration occurring during withdrawal from heroin. At the very minimum, it would be advisable that persons interested in entering this program seek a physician's advice beforehand.

Shock and Discipline.

Both Bill and Max used the term "shock" in describing the harshness and difficulties of the program. Both viewed the shock experience as therapeutic, although both also cautioned that it might be too difficult for many drug addicts. The value for Bill was that it stripped him of attachments to familiar people, places, and things, thereby giving him the opportunity to obtain a clearer look at himself. Of course, Bill and Max may have been better prepared and more accepting of these conditions than other addicts, such as Mike, the British interviewee, who reacted very negatively to the program, and who was reported to have relapsed and died following his release.

I observed that participants wore uniforms and were marched about single file in small groups to attend scheduled activities announced over the loudspeaker. The monks monitored, directed, and controlled every waking moment of the lives of the participants. Although perhaps not as harsh as a prison boot camp, there seemed to be a strong emphasis on discipline and a strong expectation to follow the rules or face punishment, including physical beatings and confinement in chains. To an extent, this may be a reflection of the difference between Asian and western approaches to drug user rehabilitation. For ex-

ample, many Southeast Asian drug user rehabilitation centers have harsh penal conditions, in contrast to drug user rehabilitation centers in the west where the recovering addict is treated more like a hospital patient. However, a striking difference between the monastery and these other programs is the level of intensity and the quality of personal interactions between the monks and the addicts. The monks are intensely involved with patients, which is made possible by the fact that there are 300 monks at the monastery. Although some monks are assigned the role of disciplining participants, the monks are not condescending and treat addicts with care and respect; many are themselves ex-addicts.

As mentioned above, the term "shock" was used to describe the program at Wat Thamkrabok. Shock-incarceration programs, sometimes referred to as "boot camps," have been in operation in the US and UK since the early 1980s (MacKenzie, 1994). The basic rationale for these programs is that they provide structure and discipline, something that criminals and drug addicts supposedly lack. They are modeled after military boot camps and involve many hours of physical training and drill, but also include rehabilitation and educational activities. Recreation is fairly limited, typically consisting of only a few hours per week. Overall, studies which have looked at the effect of shock incarceration on recidivism have found no significant differences between shock and other types of sentences.

Shock incarceration programs have also been tried in the US for drug offenders, but there is not much consensus on the effectiveness of these programs (MacKenzie, 1994). One difficulty is that a large percentage (30 to 50%) of entrants drop out before completion. (This is not a problem at Wat Thamkrabok because dropping out is not an option.) Another problem in evaluating effectiveness of these programs is that there are many variations in how they are conducted.

Singapore has been using shock-incarceration methods (i.e., cold turkey, indoctrination, drilling and physical training, strict rules and harsh conditions) along with rehabilitation activities at its drug user rehabilitation centers (Ong, 1989). Yet, in spite of these conditions many addicts have been returning to drug use, as evidenced by the high rate of relapse (determined by urine testing or rearrest during the two-year period of supervision following release from the center), which rose to 81% in 1994 (Barrett and Ong, 1995). This suggests that shock-incarceration does not, by itself, result in high rates of successful rehabilitation.

One of the rationales for boot camp programs is that they might serve as an initiation experience for addicts to earn the right to return as respected members of society. This is in keeping with the goal of returning the addict to his/her community, "FULLY CURED, head held high—with dignity re-

stored" (Wat Thamkrabok, 1991, p. 5). In traditional Thai society it has been the custom—although a steadily declining one—for young men who are about to enter adulthood to enter a wat (monastery) for a period of a few months, which might be thought of as a kind of initiation into adulthood and in order to make merit (*tham boon*) for their parents. Perhaps the stay at Wat Thamkrabok serves a similar purpose for participants, the overwhelming majority of whom are young Thai males.

Another aspect of boot camp programs is the camaraderie or bond that forms between participants. At Wat Thamkrabok there is a kind of natural segregation into cohorts of addicts who enter at the same time and who will remain together throughout their stay. The bond between these members was evident in the way they tried to help one another through the program, like the way in which Bill had encouraged Mike to make the best of it. Bill said he was proud that he had made it through the detoxification phase and proud that he could switch roles to become the helper.

Buddhism

The goal of Buddhism is to overcome suffering by means of the Noble Eightfold Path, which consists of three parts: morality (*sila*), concentration (*samadhi*), and insight (*vipassana*) (Narasabho, 1994). It advocates a "Middle Way" between the two extremes of constant attachment to sensual pleasure and self-mortification. Attachment (grasping of an object) is differentiated from craving (aspiring to an object not yet reached). Both are opposed to contentment and lead to suffering. In this view, addiction can be understood as an excessive attachment to and craving for drugs which provide sensual pleasure.

The Buddhist treatment approach focuses on both morality and understanding. The moral teaching is that addiction to intoxicants is wrong: it leads to suffering, neglect of family, heedlessness, danger, squandering of wealth, etc. Addicts must be taught about the wrongfulness of addiction and its consequences, and change their behavior accordingly. There is a definite emphasis at Wat Thamkrabok on the morality of addiction. This is first apparent during the sacred vow where the addict acknowledges the wrongfulness of his/her actions and makes a sacred vow to live without drugs. The pain and suffering of the vomiting procedure has punishment and chastening as part of its intended effects, according to the abbot (Flamm, 1993). The strict discipline, the teaching of the monks, and emphasis on responsibility for one's actions might also be thought of as moral conditioning.

At the same time, understanding must be developed through meditation, with its two aspects of concentration (*samadhi*) and insight (*vipassana*). Meditation is available at Wat Thamkrabok for Thais who are willing to stay for

longer periods; for foreigners it would depend on whether or not there are monks available who speak English (or other foreign languages). In addition to formal study, much of what is learned about the Buddhist philosophy and lifestyle is transmitted through the example of the monks. Many of the monks have recovered from addiction through the practice of Buddhism. The abbot, Phra Ajarn Chamroon Parnchand, is regarded by many as a holy man, and his presence serves as a powerful positive influence for Thai Buddhists (and some foreigners).

Sacred Vow

A central aspect of the program, as conceived by the abbot, is the importance of making a spiritual commitment and solemn vow to the Buddha—or according to one's own religious beliefs—as a condition of entry into the program. Although such a vow may be based on good intentions, and may be quite heartfelt and sincere, it is questionable how long addicts can sustain recovery on the basis of a vow. I am reminded of the mention in the text of the Alcoholics Anonymous program of the various methods alcoholics have tried, to no avail, to stop drinking, which includes" . . . , swearing off forever (with and without a solemn vow), . . ." (Alcoholics Anonymous, p. 31). Also, it would seem that making a vow to give up the use of drugs for the rest of one's life might result in a terrible sense of failure and guilt if one were to lapse which, in turn, may lead to the "abstinence violation effect" (Marlatt and George, 1984). Not only has one let oneself, family, and friends down, but one has broken a sacred promise to the Buddha. Added to this is the threat of retribution by the "spirits," who will punish those who break the vow (Wat Thamkrabok, n.d.).

A more positive view would be that making a vow and a commitment to change helps to restore a sense of dignity and hope and provides a sense of purpose. Once having made the vow, there is no possibility of leaving the program until completion; thus, a successful start is guaranteed, at least while in the confines of the program. The vow is made again upon completion of the 10-day program, whereupon the addict returns to his/her community having overcome the physical part of the illness. The battle then becomes a mental and spiritual one, and it is thought that the vow will provide strength, especially if accompanied by a supportive environment.

Success of the Program

How successful is the program in achieving its goal of freeing addicts from drug addiction? According to research conducted at the monastery, 70% of

program graduates contacted during the year following completion of the program reported living drug-free lives. This would seem to be a very optimistic estimate, given that empirical studies have shown that addiction to heroin is characterized by relapse (Hunt et al., 1971), and is perhaps better thought of in terms of a "career" in which many treatment episodes and other life events may be necessary before recovery takes place (Simpson et al., 1990). Of course, this is an empirical question, and in order to evaluate claims of success, long-term follow-up studies would need to be done to examine various outcomes over time, such as further drug and alcohol use, physical health, psychological well-being, and social and occupational functioning.

Also, evaluation studies could help determine for whom the program is successful and in what ways. Drug addicts are not a homogenous group, and treatment effects would be expected to vary according to characteristics of participants, treatment processes, the context and point of time in the career during which it occurs, and interactions among these variables (Finney, 1995). Thus, we need to consider for whom this program might be beneficial and at what point in their lives it would be appropriate. The program at Wat Thamkrabok has been designed within the local context to serve Thai addicts, the overwhelming majority of which are young, male, Buddhist, and who speak the Thai language. Even if we assume that the program is effective in promoting recovery for members of this group, it may or may not be beneficial to dissimilar addicts, i.e., foreigners, females, or older addicts.

Professionals from abroad who are entertaining the possibility of making referrals to Wat Thamkrabok would need to consider several factors. First, it would not be advisable to refer anyone suffering from serious health problems, such as heart disease, high blood pressure, diabetes, seizures, or alcoholics prone to delerium tremens. Older patients, in addition to having greater health risks, would probably find the program too arduous. Second, the patient would need to be free of any serious psychological disorders; there are no mental health professionals at the wat. Furthermore, the strangeness of the setting, language barriers, confinement, lack of social support (at least for foreigners), and the harshness of the conditions might exacerbate many disorders. Third, the program is somewhat limited in scope for foreigners due to lack of English-speaking staff. Fourth, the "shock" aspects of the program, such as dirty and unpleasant conditions, the loss of personal freedom, and the possibility of coercion, may present problems for many. Many might feel it is not worth subjecting themselves to these risks—even if the program were effective. Finally, an additional risk to persons coming from abroad is the ready availability of good quality and inexpensive heroin and marijuana in Thailand; there is always the possibility that addicts might succumb to temptation upon release from the program.

Bearing these caveats in mind, there are some persons who would find Wat Thamkrabok an appealing alternative to western treatment approaches. Some attractive features for this group might be the exotic nature of the program, the use of herbal medicine to relieve "craving", the emphasis on Buddhism, and the challenge and adventure of completing the course. One aspect of the program that is highly attractive is the very low cost of operations: only a few US dollars per day are needed to feed and house each addict at Wat Thamkrabok.

CONCLUSIONS

There are several limitations of this study which must be acknowledged. I was not able to speak in depth with Thai addicts or staff; instead most interviews were with English-speaking foreigners. Because of this shortcoming I was not able to comment much about the way that Thai participants experienced the program. Also, I was at the monastery for two brief time periods and was unable to spend much time inside the compound.

This study provides only a glimpse into the workings of the rehabilitation program at Wat Thamkrabok; there are many unresolved issues which will need further investigation. First, there need to be more in-depth investigations of treatment process and outcomes. One promising approach would be to do a participant observation study in which the researcher would volunteer to enroll for one month (or longer) in order to study the workings of the program from the point of view of the participant. This would help to better define the processes which occur during the detoxification, recovery, and further rehabilitation phases. While enrolled, the researcher might then become acquainted with other intakes who could serve as a follow-up sample for a prospective study of treatment outcomes. (A knowledge of the Thai language would be necessary.) Other questions for further study concern the effectiveness of the cathartic vomiting procedure. Does it really reduce "craving"? If so, how does it work? Are there possible health risks or side effects of vomiting? Finally, issues regarding reports of coercion and safety risks need to be evaluated.

Meanwhile, each month the drug user rehabilitation program at Wat Thamkrabok continues to take in over 400 new addicts. The popularity and longevity of this program suggest that it is providing a valuable service to addicts in Thailand. While there may be concerns about possible health risks and certain coercive aspects of the program, there may also be some unique therapeutic elements which would prove effective in rehabilitation programs elsewhere.

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RESUMEN

Desde el ãno 1959 Wat Thamkrabok (un monasterio en Thailandia) habia ofrecido un programa de rehabilitácion para drogadictos que asegura una porcentaje alta (70%) de éxitos. Esta programa está fuera de lo común porque usan un procedimiento de vomitar para reducir ansias a tomar las drogas, saunas con las yerbas, disciplina estricta, budhismo y una promesa sagrada a consumir drogas jamas. Esta investigacíon descriptiva está basada en observaciónes y entrevistas (principalamente con drogadictos extranjeros) al monasterio. No es possible a evaluar la afirmacíon de éxitos del programa,

pero sin embargo hay muchas cosas interesantes que salieron. El procedimiento de vomitar está reportado a ser effectivo para reducir la ansias a consumir las drogas y muchas participantes dan approbación al programa, pero tambien hay algunos asuntos seriosos sobre los riesgos de salud y la coacción ente el monaserio.

RÉSUMÉ

Depuis l'anneé 1959 Wat Thamkrabok (un monastère situé en Thailande) propose un programme de réhabilitation pour les drogués qui serait, à 70%, une réussite. Le programme est unique. Un procédé provoquant le vomissement fait passer l'envie de drogues en employant comme moyen un bain aux herbes, une discipline rigouruse inspirée du bouddhisme, et un engagement sacré de ne plus toucher à la drogue. Cette enquête a été réalisée à partir des observations et des entretiens effectués principalement avec des drogués étrangers dans le monastére. Ce programme est très intéressant même s'il est difficile d'en évaluer le succès réel. Il a été prouvé que le vomissement est un moyen efficace de diminuer l'envie de drogues. Les participants semblent avoir une attitude positive envers le programme mais il y a quelques doutes quant aux effets secondaires et à la nature coercitive du programme.

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Mark E. Barrett obtained his Ph.D. in psychology from Texas A&M University (1988) where he studied with Professor Dwayne Simpson, who was principal investigator of the Drug Abuse Reporting Program (DARP) at that time. After graduating from A&M, he managed epidemiological studies for a few years at the Department of Alcoholism and Substance Abuse in Chicago, Illinois. Currently, he lives in Singapore with his wife, Jinky, and his daughter, Larissa, and for the past six years he has been teaching psychology at the National University of Singapore. His current research interests include epidemiology and treatment of drug misuse in Southeast Asia, particularly Singapore, Thailand, and the Philippines.

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Student Substance Use

Drug Use and Lifestyle among College Students in Austria and the United States

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ABSTRACT

Using an anonymous questionnaire, we assessed the prevalence of alcohol use and illicit drug use among 545 college students in Innsbruck, Austria in 1995. The questionnaire also assessed various aspects of students' lifestyles, including academic performance, college activities, career plans, visits to a psychiatrist, and sexual activity. We compared these results with those obtained using the same questionnaire at a similar American college in 1989. We found that the prevalence of virtually all forms of illicit substance use was much higher among the American students. In both Austria and the United States, however, we found few differences between drug users and nonusers on most measures of lifestyle, with the exception of heterosexual activity.

Key words. Substance use; Marijuana; Lifestyle; College students

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INTRODUCTION

The use of alcohol and other drugs among college students has received great attention in the United States, but has not been studied as frequently in European countries. The available literature in the last 10 years generally suggests that the prevalence of illicit substance use among European students (Ashton and Kamali, 1995; Cronin, 1995; Nyström et al., 1993; Williamson, 1993; West et al., 1990; Lopez et al., 1989; Macchia et al., 1990; see Table 1) is substantially lower than among their American counterparts (Prendergast, 1994; Schorling et al., 1994; Cuomo et al., 1994; Minugh and Harlow, 1994; Schuckit et al., 1994; Hardert and Dowd, 1994; Clifford et al., 1991; MacDonald et al., 1991; O'Malley et al., 1991; Pope et al., 1990; Meilman et al., 1990; O'Hare, 1990; Patterson et al., 1988; Perkins and Berkowitz, 1986). However, to our knowledge, no comparative studies have been performed in which students in the United States and Europe were surveyed using identical methods.

In an attempt to provide cross-cultural data on the prevalence and associated characteristics of student substance misuse in Europe vs the United States, we administered an anonymous questionnaire to 545 students at Innsbruck University in Innsbruck, Austria, and compared the results to those obtained using an identical questionnaire among college students at a university near Boston, Massachusetts, in the United States.

METHODS

We employed a two-page questionnaire covering various categories of drug use, together with questions about aspects of college life, such as grades, college activities, career plans, visits to a psychiatrist, and sexual activity. This questionnaire, which required no more than 10 minutes to complete, asked the respondent to check one of several choices in response to each of about 30 questions. The questionnaire was essentially a direct translation into German of the questionnaire which we had previously used in a longitudinal study of American college students in 1969, 1978, and 1989 (Walters et al., 1972; Pope et al., 1981, 1990). Questionnaires were distributed in 1995 at various public sites around Innsbruck University by a research assistant. The research assistant told potential respondents that the questionnaire covered questions about drug and alcohol use, together with questions about various aspects of college life. The research assistant assured all potential respondents that the questionnaire was entirely anonymous. A stamped, self-addressed envelope was supplied for returning the questionnaire to the investigators.

Table 1.

Use of Drugs and Alcohol by European University Students: Selected Studies

Country	Author	Year	Subjects	Sample size	Data sources	Response rate	Results	Remarks
UK	Ashton and Kamali	1995	Medical students	186	Questionnaire: EPQ[a], HAD[b]	99%	54% of males and 46% of females had tried cannabis; 22% of sample had used other illicit drugs	Striking increase in drug use in 1993–94 vs 1983–84
Germany	Cronin	1995	US college students living in Germany	216	ADSM[c]	38%	37% of resopndents currently used hashish; 2% used cocaine; 7% used hallucinogens	Drug use inversly correlated with strength of religious commitment
Finland	Nyström et al.	1993	University students	3,836	Self-administered questionnaire	74% of males; 54% of females	12% of males consumed >15 kg of alcohol per year; 5% of females consumed >10 kg	Heaviest 10% of student drinkers consumed 42% of the total alcohol
UK	Williamson	1993	College students	687	Questionnaire	92%	4.4% of males and 1.1% of females reported anabolic steroid use	UK rates of steroid use appear comparable to US

(*continued*)

Table 1. *Continued*

Country	Author	Year	Subjects	Sample size	Data sources	Response rate	Results	Remarks
Denmark	Lassen et al.	1992	Students	333	Questionnaire	83%	9% of university students had used hallucinogenic psilocybin containing mushrooms; 2% had used LSD experiences	Mushrooms are the most commonly used hallucinogens in Denmark
UK	West et al.	1990	Undergraduate students	270	3 alcohol questionnaires; MAST[d]	68%	26% of males and 15% of females reported "heavy drinking"	Vandalism and assaults correlated with "heavy drinking"
Spain	Lopez et al.	1989	University students	1,010	Self-administered questionnaire	NR[e]	31% had used cannabis; 6% hallucinogens; 5% cocaine; 19% tranquilizers	Age of first cannabis use 16–18; age of use of other drugs 18+

[a]Eysenck Personality Questionnaire.
[b]Hospital Anxiety Depression Scale.
[c]Alcohol and Drug Survey used at the University of Minnesota.
[d]Michigan Alcohol Screening Test.
[e]Not reported.

We performed two types of comparisons with the results obtained on the questionnaire. First, we compared the prevalence of various forms of substance use in the Austrian sample with those obtained in 1989 in the American sample (Pope et al., 1990). Second, we compared all Austrian students who had used an illicit drug at some time ("users") with those who had never used an illicit drug ("nonusers"). We also compared students who had first used an illicit drug before they started college, or at least three years prior to the time of the questionnaire ("long-term users") with the nonuser group. Since the American sample had previously been analyzed using the same definitions, we were able to compare attributes of nonusers, users, and long-term users in Austria with those in the United States. The statistical significance of comparisons was assessed using Fisher's exact test for 2×2 comparisons.

RESULTS

We distributed 800 questionnaires at Innsbruck University, 400 to men and 400 to women. Completed questionnaires were received from 301 (75%) of the men and 244 (61%) of the women. The mean ($\pm$SD) age of the students was 23.3 ± 3.6 years.

Because of slight differences in wording between the German and English versions of the questionnaires, it was not possible to compare directly the prevalence of alcohol use between Austria and the United States. Among the Austrian students, 135 (25%) responded that they did not drink alcohol "in an average week" and had never "had problems" with alcohol. At the other extreme, 65 (13%) Austrian students responded that they had experienced "recurrent social, familial, legal, physical, or psychological problems" as a result of alcohol. Among the 369 respondents in the American sample, 148 (40%) reported that they used alcohol once a week or more, but the prevalence of frank alcohol misuse was not assessed by the questionnaire.

Turning to illicit drugs, the rates of use of various categories of substances reported by the Austrian and American students are compared in Table 2. As will be seen, all forms of substance use were higher among the American students. Particularly striking was the difference in reported cocaine use, with more than one-fifth of American students having tried this drug as compared to only 3% of their Austrian counterparts.

Upon examining the attributes of drug users vs nonusers in the two populations, however, we found few significant associations between drug use and lifestyle in either Austria or the United States. Specifically, there was no significant difference between nonusers, users, and long-term users in reported college grades in either country. However, in Austria, the 65 students who reported alcohol misuse received significantly lower grades than all other students ($p = .001$). Since alcohol misuse was not formally assessed in the American sample, a similar comparison could not be performed.

Table 2.

Substance Use among Austrian vs American College Students[a]

	Austria (N = 545)	US (N = 368)
	N (%)	N (%)
Marijuana***	200 (37)	216 (59)
Marijuana once a week or more**	11 (4)	21 (6)
Amphetamines	36 (7)	33 (9)
Cocaine***	17 (3)	75 (21)
LSD**	33 (6)	41 (11)
Opiates*	20 (4)	25 (7)
Any illicit drug***	222 (41)	208 (57)

[a]All figures indicate the numbers of respondents who reported having used a given category of drug at any time in their lives with the exception of the item "marijuana once a week or more";
*$p < .05$; **$p < .01$; ***$p < .001$.

On college activities, including sports, political organizations, drama or music organizations, other organizations, and total time spent in such activities, no significant differences were observed between nonusers and either users or long-term users, either in Austria or in the United States. Similarly, no differences were found between drug-use groups in either country on the question, "How definite are your career plans?"

Visits to a psychiatrist were reported significantly more frequently by American drug users than by nonusers. A significant difference was not observed on this variable among Austrian students. However, this finding is difficult to interpret, because only 33% of the Austrian men responded to this question, apparently as a result of a problem with the way in which the translated question was presented. In any event, drug use was rarely reported to be a cause for visiting a psychiatrist, either in the United States or in Austria: only one of the American respondents stated that the reason for visiting a psychiatrist was drug use, and only three Austrian subjects responded similarly.

Only on reported heterosexual activity did we find significant differences between users and nonusers in both countries. These results are shown in Table 3. In both countries there are substantial differences between users, nonusers, and long-term users in the number of respondents who reported having had intercourse with at least one partner. Austrians overall were slightly more likely to report having had intercourse than were Americans overall, possibly because the Austrian college students were about two years older than American coun-

Table 3.

Drug Use and Heterosexual Activity[a]

	Intercourse with at least one partner
	N (%)
Austria	
Nonusers (N = 312)	231 (74)
All users (N = 218)	195 (89)
Long-term users (N = 114)	98 (86)
US	
Nonusers (N = 144)	75 (52)
All users (N = 204)	175 (86)
Long-term users (N = 149)	134 (89)

[a]Significance of differences: Users vs nonusers and long-term users vs non-users, $p < .001$, in both countries; Austrian nonusers vs American nonusers, $p < .001$; all Austrians vs all Americans, $p = .004$.

terparts. No differences were found between users and nonusers on reported homosexual orientation or activity in either country.

DISCUSSION

In our cross-cultural study we found higher rates of use of all illicit substances among students at an American college as compared to those in a similar college in Innsbruck, Austria. On both sides of the Atlantic, however, no significant differences were observed between drug users and nonusers on measures of academic performance, college activities, or career plans. Only on the variable of heterosexual activity did prominent differences emerge, with drug users consistently reporting higher rates of sexual experience than their nonuser counterparts in both countries.

The prevalence rates for various forms of drug use reported by the college students in the present study are generally concordant with those obtained in other studies conducted over the last 10 years among comparable student populations in various European countries (Ashton and Kamali, 1995; Williamson, 1993; West et al., 1990; Lopez et al., 1989; Cohen, 1989) and in the United States (Predergast, 1994; O'Malley et al., 1991; Pope et al., 1990; Patterson et al., 1988). The consensus of these results is that all forms of illicit drug use, especially cocaine use, are substantially more frequent among American college students than among their European counterparts. For

example, among European students, the proportions who had tried cannabis on at least one occasion was 31% in one study of Spanish college students (Lopez et al., 1989) and 49% among British medical students (Ashton and Kamali, 1995), suggesting that our figure of 37% is representative. Similarly, recent American studies have produced results of 61% (Patterson et al., 1988) and 64% (Cuomo et al., 1994) on this variable, again suggesting that our finding of 59% is typical of American college populations (Prendergast, 1994).

Relatively few studies of student populations have assessed the attributes of illicit drug users as compared to nonusers. However, of those studies which have addressed this issue, most have produced results similar to ours, in that they have found few differences between users and nonusers on measures of various aspects of lifestyle (Walters et al., 1972; Pope et al., 1981; West et al., 1990; Schuckit et al., 1994). Interestingly, however, two American studies (Prendergast, 1994; Perkins and Berkowitz, 1986) noted a significant association between alcohol misuse and impaired academic performance, similar to that noted in the Austrian cohort in the present investigation.

Several methodologic limitations must be acknowledged. First, it is difficult to be certain whether the particular colleges which we surveyed are representative of colleges in their respective countries. It seems unlikely, however, that either college would be grossly atypical, since both colleges are prestigious institutions which draw students from throughout their respective countries. Furthermore, the differences in rates of drug use between the two institutions are so striking that they would seem unlikely to be due to an idiosyncracy of one of the populations.

Second, it is possible that some error was introduced because the surveys were performed at different times—1989 in the United States and 1995 in Austria. Given evidence that rates of college drug use are declining in the United States (Prendergast, 1994; Schuckit et al., 1994; Meilman et al., 1990; Pope et al., 1990; Patterson, 1988), it might be that a 1995 survey at a typical prestigious American college would yield lower prevalence rates than those obtained in 1989. Again, however, the differences between the United States and Austria are so striking that it seems very unlikely that they could be attributable merely to differences in the times that the surveys were conducted.

Third, it must be recognized that substance use is associated with heterogeneous, complex, and dynamic populations. Thus, our failure to find significant differences between users and nonusers on many of the variables studied within each country does not establish that such differences are lacking. Instead, the relatively simple measures used in the questionnaire may simply have been too insensitive to detect differences among various groups.

Finally, given that not all students returned their questionnaires (a 68% response rate in Austria and a 86% rate in the United States), one must allow

that some selection bias may have occurred. In particular, it seems possible that individuals with a history of drug use might have been more apprehensive about initially accepting the questionnaire or returning it later, despite our assurances of anonymity. However, this bias, if it occurred, would likely be similar in both populations, and would thus be unlikely to greatly affect the comparisons between them.

In summary, despite the limitations of this study, our results support the hypothesis that substance misuse is much more prevalent among American college students than among comparable students in central Europe. On the other hand, our results suggest that student drug users, as a whole, are not strikingly different from their nonusing counterparts in either country. Only on the variable of heterosexual activity were marked differences observed, and here the difference seems almost certainly attributable to differences between users and nonusers on attitudes and values rather than to an effect of drug use itself. However, the absence of overall differences between users and nonusers does not exclude the possibility that some students might be profoundly compromised in their function as a result of drug use. Only a study systematically directed at students with frank problems of substance misuse or dependence could assess the frequency and severity of this phenomenon.

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RESUMEN

Utilizando un questionario anónimo, investigamos la prevalencia del uso de alcohol y grogas en un grupo de estudiantes universitarios en Innsbruck, Austria. También hemos investigado varios aspectos de la vida diaria de los estudiantes incluyendo logros académicos, actividades extracurriculares, planes de trabajo, visitas a psiquiatras y prácticas sexuales. Comparamos los resultados de los estudiantes austriacos con resultados obtenidos con estudiantes en los Estados Unidos en 1989. Encontramos que la prevalencia de casi todas las formas de uso ilegal de drogas era mayor en los estudiantes de los Estados Unidos. Tanto en Estados Unidos como en Austria, encontramos muy poca diferencias entre los estudiantes que usan drogas y los que no usan drogas con respecto a varias medidas de la vida diaria, con excepcion de activades heterosexuales.

RÉSUMÉ

A l'aide d'un questionnaire anonyme, nous avons exploré la consommation d'alcool et les abus de drogue dans une population de 545 étudiants autrichiens (Université d'Innsbruck). Le questionnaire évaluait également des aspects variés du style de vie des étudiants notamment les performances académiques, les activités universitaires, les projects de carrière, l'activité sexuelle et les consultations psychiatriques. Nous avons comparé les résultats avec ceux recueillis dans les mêmes conditions aux Etats-Unis en 89 (même questionnaire et université similaire). Nous avons trouvé que l'usage de presque toutes les drogues avaient une prévalence beaucoup plus élevée chez les étudiants américains. Toutefois, en Autriche comme aux Etats Unis, nous ne notons que peu de différences entre les utilisateurs de drogue et les autres étudiants pour la plupart de mesures concernant le style de vie, hormis l'activité hétérosexuelle.

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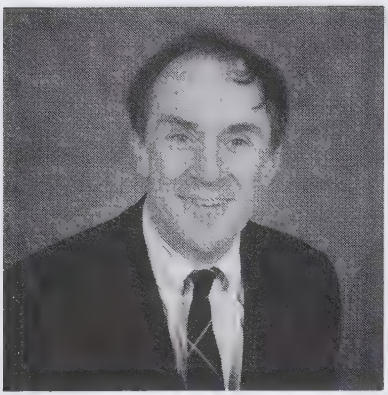

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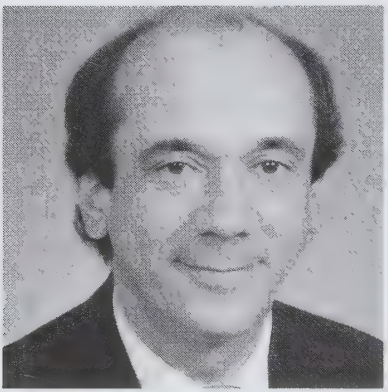

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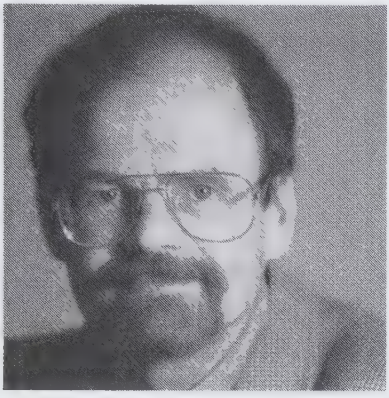

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Social Pharmacology

The Rules of Drug Taking: Wine and Poppy Derivatives in the Ancient World. IV. The Rules of Temperance

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ABSTRACT

Drinking in moderation was considered fully appropriate for Greek citizens and, accordingly, wine played a central role in the symposium, where adult men met to enjoy poems, music, conversation, and sex. To reach the goal of remaining "euphoric" without getting intoxicated, wine was drunk diluted. Usually, three parts of water were added to one part of wine. Since drinking diluted wine produces a slow rise of alcoholemia, the pharmacological rationale of this habit seems to stand on two factors: 1) feeling relaxed and euphoric are mainly perceived during the rise of alcoholemia; 2) alcohol intake can be titrated as long as intoxication is not reached.

THE RULES OF TEMPERANCE

Greek citizens did not fit in the bloody and distressing landscape of drunkenness. They had to practice temperance: "The drinking of much wine is an ill; but if one drink it with knowledge, it is not an ill but a good," recommended Theognis (1979a). And ". . . there's no wrong in drinking just so much as will bring any but the very aged home without a servant," echoes

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Xenophanes (1979a). Temperance is the behavior that defends against wildness, and under its protection the utmost social expression of Greek civilization—the symposium—can be expressed. The symposium is a meeting of "men, citizens who drink, recite lyric poems, play music and converse" (Lissarague, 1987, p. 9). As Xenophane (1979b) described it: "one lad puts woven wreaths about our heads, another brings round a jug of fragrant perfume; the mixing bowl stands full of good cheer, and other wine, which vows it will never play false, is ready in the jar, mild to taste and sweet to smell. In the midst, frankincense gives forth its sacred odor and water stands cool and sweet and clear. . . . The altar between is decked all about with flowers, and the house is filled with song and festing." And Theognis (1979b) concludes: "Now let us rejoice over our cups, saying good things; what shall come after is for the Gods to look to."

From these fragments of archaic lyrics it appears that in the symposium people did not gather just to drink wine, but that drinking was instrumental for a good outcome of this social event: "This . . . is the Greek way of drinking; by using cups in moderation, they can talk and fool with each other pleasantly. For the other way, drinking from coolers and casks, is a bath, not a drinking-bout . . . It's death, rather!" (Athenaeus, 1969c). This is all but surprising if we consider what happens in today's parties, which are hard to imagine without alcoholic drinks, but where it is not socially correct to get drunk. The pharmacological rationale of this sober use of alcohol is rather obvious. The tension relief properties of alcohol, particularly in the social setting, are sufficient to explain its conspicuous role in Greek symposia, as well as in our parties (Young et al., 1990; Kushner et al., 1990). In other words, wine and martini are very good social lubricants. However, there is an aspect of Greek and Roman social drinking that looks strange to us. It consists in the strictly applied rule of drinking wine diluted with water: ". . . we have two fountains besides us, one of which, the fountain of pleasure, one might liken to honey; the other, the sobering and wineless fountain of wisdom, to a well of homely of healthful water; these we must mix in the best possible way" (Athenaeus, 1969b). This habit sounds even stranger if we consider that warm water was sometimes used to dilute wine (Martial, 1919).

As we can understand from a large body of literature, different rates of dilution were adopted. Let us go back to the episode of Ulysses who intoxicated the Cyclope. The wine used by Ulysses was a gift of Maro, a devotee of Apollo: "And as often as they [Maro and his wife] drank that honey-sweet red wine he would fill one cup and pour it into *twenty measures of water*, and a smell would rise from the mixing-bowl marvelously sweet; then verily would one not choose to hold back" (Homer, 1919a). This ecstatic voluptuousness is turned into disgust when it is the Cyclope who drinks the same wine, but undiluted: ". . . and sleep, that conquers all, laid hold on him. And from his

gullet came forth wine and bits of human flesh, and he vomited in his drunken sleep" (Homer, 1919b). Here modalities of drinking mark the difference between civilization and the most brutal wildness. Ulysses' wine, of course, was a very special wine and required to be extremely diluted. Moving to real life, the wine was usually diluted with three parts of water: "Here, drink this also, mingled three [parts of water] and two [parts of wine]" (Aristophanes, 1924). Others preferred a bit more diluted wine and mixed two parts of wine and five of water. Alcaeus (1922) was a harder drinker: "Pour bumpers in a mixture of one [part of water] and two [of wine], and let cup chase cup around hot foot." Xenophanes (1979c) advises how to mix water and wine: "Nor would a man pour wine first into the cup when he mingled it, but water and thereafter the liquor. . . ."

This habit was still alive during the decline of the imperial age, as suggested by a Nonnos' passage that revived an ancient myth on the discovery of wine: "The wine spurted up in the grapefilled hollow, the runlets were empurpled; pressed by the alternating tread the fruit bubbled out red juice with white foam. They scooped it up with oxhorns, instead of cups which had not yet been seen, so that ever after the cup of mixed wine took this divine name of Winehorn" (Nonnos, 1940).*

Thus, in the Greek imagination, drinking modalities made the differences between the "others" and good citizens: the first drank undiluted wine in excess and possibly even during the day, whereas the second drank only after the evening meal (*deipnon*), mixing wine in approved proportions. Thus, we may guess that telling someone: "you come into my house already drunk before you have dined" (Athenaeus, 1969a) should have been a very harsh objection. In contrast to the habit of watering down wine, the rule of avoiding drinking during the day is quite familiar to us. In contemporary life, alcohol typically marks the passage from that part of the day which is dedicated to work to that in which relaxation is sanctioned, usually in the late afternoon (Gusfield, 1987). It is socially unacceptable to break the rule of restricting the consumption of drinks to the resting period of the day. It is so unacceptable that it is considered an important marker of alcoholism severity (Claussen and Aasland, 1993; Sherlock, 1995). Therefore, if forbidding morning drinking is a cultural construct, we must acknowledge that it took root soon after the introduction of wine. Sobriety is the clear aim of this rule, as well as of the other, that wine should be drunk watered.

*Here there is a pun between *kéras* (cow's horn), in which primitives were supposed to drink wine, and *kerannymenos* (the watered wine). In contrast, *àcratos* was the name of the pure wine. That Greeks needed a word to indicate watered wine clearly testifies that the habit of drinking diluted wine was deeply rooted among them. For Romans also the word *vinum* was not enough and *merum* was used to indicate undiluted wine.

It has been suggested that the reason for diluting wine consisted in its high alcoholic content (Lissarague, 1987, p. 7). This in turn was due to the habit of harvesting grapes in the late fall when, according to Cato, they were *percocta* (very well ripe, *De Agricultura*, 28), and then very rich in sugar. In other words, at that time wine should have been a sort of raisin wine. Thus, it may be that the Ancients had wines more graded than we have. We know that drinking beverages with a high alcoholic content produces taste aversion, a stimulus very efficient in inhibiting the acquisition of drinking behavior (Hunt and Amit, 1987). However, I hardly believe that the alcohol content of wine was so high as to induce a level of taste aversion that could not be surmounted by habituation. Note that in more recent times (from the sixteenth century on), people easily learned to drink spirits, quickly adapting to the aversive properties of alcohol at concentrations over 30% (Matthee, 1995).

There was probably a different reason for diluting wine, and it was independent from its gradation. Were we to dilute by three times a contemporary regular wine (more than 10% but less than 13%), we would obtain an alcoholic concentration close to that of light beer. This kind of beverage should have produced a slow rise of alcoholemia, but not a delay of the reinforcing effects of drinking ("euphoria," relaxation, etc.), because it has been reported that a drinker feels elated, friendly, and vigorous as far as the alcoholemia rises (Babor et al., 1983). It has also been demonstrated that drinking diluted wine allows the drinker to titrate accurately his intake of alcohol on the basis of enteroceptive stimuli that he has learned to associate with the various levels of wine intake: "drinkers in social settings can make at least crude estimates of their level of intoxication, and that the accuracy of these estimates decreases as BAC [blood alcohol concentrations] increases" (Werch, 1990). Thus, the slow rise of alcoholemia increases the capability of the subject to maintain the control of drinking, avoiding or postponing intoxication. As far as intoxication produces cognitive confusion, hostile verbal interaction, and aggressive thematic content, its avoidance would be of benefit in the context of social drinking.

In conclusion, we may argue that the rationale of drinking diluted wine consisted in the attempt of optimizing the "positive" effects of drinking (elation and relaxation), avoiding, or at least postponing, its "negative" effects (drunkenness and hangover; see Fig. 1). In other words, this kind of schedule of wine intake was reinforced by the maintenance of a prolonged rewarding psychological state (tension relief, facilitation of social interactions, "euphoria," etc.), which made the drinker particularly receptive to the pleasant environmental stimuli typically associated with symposium—conversation, music, dance, and sex. A good example of this enhanced receptivity can be found in a famous fresco from the so-called "Diver Tomb" in Paestum (Italy), where sexual activity and drinking are implicitly related (Fig. 2; Napoli, 1969). An extreme sensuality pervades the scene, where each character is shown with his own cup of wine. Of course, they are drinking, but they do not appear

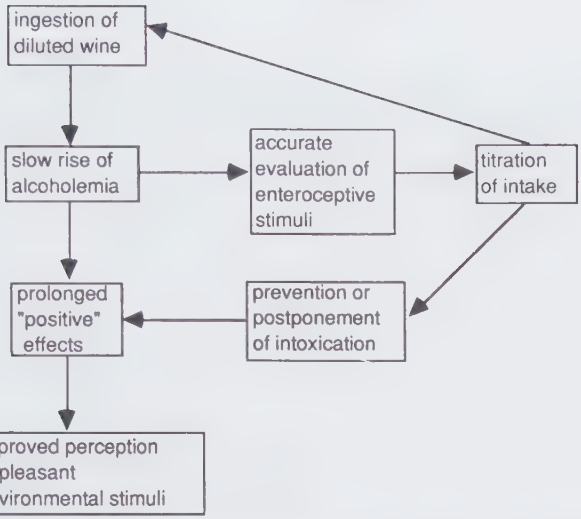
ingestion of diluted wine
slow rise of alcoholemia
accurate evaluation of enteroceptive stimuli
titration of intake
prolonged "positive" effects
prevention or postponement of intoxication
improved perception of pleasant environmental stimuli

Fig. 1. Ingestion of diluted wine induces a slow rise of blood alcohol concentrations, allowing a better control on wine intake and prolonging reinforcing effects of alcohol.

Fig. 2. "The lovers," detail of a fresco found in the Tomb of the Diver, Paestum, Italy (V Century B.C., Paestum Museum).

intoxicated, and in the man who was grasping the effeminate boy there is no trace of the brutality that moved the drunk centaur Eurytus toward the bride (see Part II of this series).

If we look closely to the different contents of the symposium, we may find another reason for avoiding (or postponing) drunkenness, besides the need to respect social rules that imposed sobriety. It consists in the need to maintain the motor coordination required to play *cottabo*. This was a strange game in which participants to the banquet had to swallow a cup of wine and then throw the last few drops of wine into another cup placed at a certain distance (a figurative representation of *cottabo* is in the Diver Tomb discussed above. See Napoli, 1969, p. 76 and Table XVIII). In the meantime, the player pronounced the name of a girl or of a boy present at the banquet. If the player succeeded in reaching the target, he "won" the sexual performance of the girl (or of the boy) (Lissarague, 1987, p. 95). Obviously, a player made dismetric and uncoordinated by too much wine had few possibilities to reach the target.

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RESUMEN

Los griegos estimaban que beber con moderación era algo totalmente digno de un ciudadano; esto se ve confirmado por el papel central que el vino desempeñaba en el simposio, una reunión de hombres adultos en la que se disfutaba de la conversación, del sexo y de la música. Para alcanzar el objetivo de un estado eufórico sin pérdida de control, se solía beber vino diluido. Normalmente, se mezclaba una parte de vino con ters partes de agua. Puesto que esta bebida provoca una subida lenta de la alcoholemia, las bases farmacológicas de esta costumbre pueden residir en dos factores: I) los aspectos subjectivos agradables del beber se perciben sobre todo en la fase de subida de la alcoholemia; II) la asunción de alcohol puede ser titulada por el bebedor mientras no se llegue a la ebriedad.

RÉSUMÉ

Boire de façon modérée était considéré comme tout à fait convenable pour le citoyen grec, et en effet le vin jouait un rôle fondamental dans le symposium,

une réunion d'hommes adultes dont la finalité était de jouir de la conversation, du sexe et de la musique. Pour réussir à rester euforique sans s'enivrer, il était coutume de boire du vin dilué. Généràlement la proportion était d'une part de vin pour trois parts d'eau. Etant donné que le vin dilué fait monter lentement l'alcoolémie, le fondement pharmacologique de cette habitude peut dépendre de deux types de facteurs: I) le plaisir subjectif de la boisson est perçu essentiellement pendant la montée de l'alcoolémie; II) l'ingestion d'alcool peut être titrée par le buveur lui-même dans le mesure où l'ivresse n'a pas encore été atteinte.

RIASSUNTO

Il bere in moderazione era considerato pienamente appropriato per il cittadino greco e infatti il vino svolgeva un ruolo centrale nel simposio, una riunione di uomini adulti finalizzata a godere della conversazione, del sesso e dell'ascolto della musica. Per raggiungere l'obiettivo di rimanere euforico senza ubriacarsi, si usava bere il vino diluito. In genere, una parte di vino era mischiata con tre parti di acqua. Poichè bere vino diluito induce una lenta salita della alcolemia, il razionale farmacologico di questa abitudine può consistere in due fatti: i) gli aspetti soggettivi piacevoli del bere sono percepiti soprattutto durante la fase di ascesa dell'alcolemia; ii) l'assunzione di alcol può essere titolata dal bevitore nella misura in cui l'ebrezza non è raggiunta.

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Research Note

Coping with a Partner Who Drinks Too Much: Does Anything Work?

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ABSTRACT

This paper reports on a multiple regression study in which the efficacy of positive and negative coping responses adopted by the partners of "heavy drinkers" were compared under conditions of drinker intoxication and sobriety. Results indicated that only one combination of response type and drinker state was associated with higher levels of partner well-being: positive responses when the drinker is sober. Moreover, even this coping pattern accounted for relatively little variance in partner well-being scores. It is concluded that programs which aim to improve the quality of partner's lives should not generalize about desirable coping behaviors but should take account of situational and individual difference variables.

Key words. Drinker's partner; Coping; Partner well-being; Alcoholism; Drinker's family

INTRODUCTION

Women married to problem drinkers are a much-studied group, and the fact that they are more likely than wives of normal drinkers to experience distress and marital conflict has been very well-documented (e.g., Paolino and McCrady, 1977; James and Goldman, 1971; Finney et al., 1983; O'Farrell and

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Birchler, 1987). Because early research into the partners of "heavy drinkers" tended to implicate wives in the drinking (Price, 1945; Futterman, 1953; Jackson, 1954), women have often had to carry the added burden of blame. Later research moved from analysis of women's personalities to the ways in which they behave toward their husband's excessive drinking (e.g., Orford et al., 1975; Schaffer and Tyler, 1979). In this approach, different styles of responding (commonly referred to throughout the literature as coping) are compared with the husband's level of consumption. Numerous treatment programs for wives of uncooperative problem drinkers have incorporated findings from coping studies, and considerable work has now been done on how to influence husbands into treatment or consolidate gains made during treatment (e.g., Barber and Crisp, 1995; Barber and Gilbertson, 1996; Sisson and Azrin, 1986; Thomas et al., 1986–87; Yoshioka et al., 1992). As the authors recently pointed out (Barber and Gilbertson, 1996), however, much of this work has overlooked the women themselves. The focus on wives as adjuncts to their husbands' treatment ignores them as primary clients living with a major stressor and in need of assistance in their own right. A notable exception is Al-Anon, which aims to help partners reduce their own distress by adopting an attitude of "loving detachment" toward the drinker (Ablon, 1974; Gorman and Rooney, 1979). In the absence of firm empirical data, however, there is no consensus in the literature on how partners should respond in order to maximize their own quality of life. For example, while Al-Anon recommends that family members should not try to influence the drinker, Meyer (1982) advocates the use of confrontation in a calm and nonjudgmental way. Similarly, most experts recommend that controlling actions, such as disposing of alcohol, are a mistake (e.g., Djukanovic et al., 1976), but Orford et al. (1975) reported that antidrinking actions of this kind were at least more likely to be associated with reduced drinking. There is also no agreement over whether the expression of anger by the partner of a drinker is adaptive or maladaptive for the partner her- or himself. In a recent paper on coping behavior among family members, Orford (1994) identified eight potential coping styles and canvassed the likely advantages and disadvantages of each. However, the absence of any data again forced him to be circumspect about which behavior or behaviors should be promoted to partners in their interactions with drinkers. The present study sought to identify whether some coping responses are more likely than others to be associated with psychological adjustment in the partners of drinkers.

METHODS

Respondents

Fifty-seven women and 3 men responded to newspaper advertisements from late 1994 to early 1995 calling for people who were currently living in

constant contact with a "heavy drinker" (not necessarily cohabitating) to participate in a study of drinkers' partners. Table 1 summarizes the background characteristics of these respondents.

In addition to age ($\bar{x}$ = 45.17 years, SD = 8.17) and gender, Table 1 presents the number of partners who indicated on a self-report checklist of potential personal problems that drinking had either "occasionally," "often," or "always" caused them various kinds of problem. As Table 1 reveals, the most commonly reported problems were physical abuse by the drinker (n = 55) and feeling to blame for the drinking (n = 52). Respondents also commonly reported some loss of self-confidence (n = 40), high levels of money worries (n = 38), and disturbed sleep (n = 37). Finally, Table 1 also records that respondents reported a mean well-being score of 65.81 (SD = 15.9) out of a possible 108 on Wolcott and Glezer's (1989) Life Satisfaction Scale (see below). This score was not significantly different from a normative sample of couples undergoing marital therapy. In addition to this personal information,

Table 1.

Profile of Partners: Selected Parameters

Parameter	*n*
Gender:	
Female	57
Male	3
Age:	
25–34	10
35–44	16
45–54	22
55–64	8
65+	4
Personal problems:	
Irritability	15
Loneliness	24
Anger	33
Insecurity	33
Disturbed sleep	37
Feeling neglected	22
Worry	10
Responsibility	25
Physical abuse	55
Embarrassment	28
Money problems	38
No company	24
Verbal abuse	26
Low self-confidence	40
Sexual problems	23
Guilt	52

all respondents completed the family form of the Short Michigan Alcoholism Screening Test (SMAST) (Selzer et al., 1975) developed by James and Kazak (1992) to assess their partner's level of alcohol dependence. The mean SMAST score of 6.70 (SD = 2.44) was well above the threshold of 3.00 that is normally taken to indicate alcohol dependence. Respondents claimed that drinking had been causing problems in the relationship for an average of 12.19 years (SD = 8.17) and that drinkers had been intoxicated in the previous week on an average of 3.02 days (SD = 2.29). Thirty-nine of the drinkers were employed.

Measures

Respondents completed three checklists. In the first, the partners indicated how often drinking caused them a range of personal problems. The other two checklists dealt with coping behaviors. The "Responses to Intoxication" asked respondents about their use of nine coping strategies when the drinker was intoxicated. Five of the responses were negative and four were positive. The five negative responses were as follows: 1) arguing with your partner about his/her alcohol use, 2) nagging your partner about drinking, 3) threatening (to leave, to call police, etc.) if your partner does not do something about his/her drinking, 4) hiding or disposing of any alcohol in the house, and 5) pleading, cajoling with your partner. The four positive responses were: 1) preparing a nice meal, 2) being pleasant toward your partner, 3) initiating conversation about topics your partner enjoys, and 4) suggesting you both go out somewhere nice for a meal, show, etc. Respondents indicated on 5-point scales from "1. Never" to "5. Always" how often they employed these responses when their partner was drunk. The other coping behavior checklist was called "Responses to Abstinence or Reduced Drinking" and it asked respondents about their use of these same nine strategies when their partner was sober. The behaviors included in both coping behavior checklists were derived from Orford et al.'s (1975) study of coping responses adopted by partners in marriages complicated by alcohol use. After completing these checklists, respondents moved to Wolcott and Glezer's (1989) 12-Item Well-Being Scale. This scale was extracted from a more comprehensive Life Satisfaction Scale, and items on both scales were scored from "1. Terrible" to "9. Delighted." Thus, total well-being scores could range from 12 to 108, with higher scores indicating higher levels of life satisfaction. While the psychometric properties of the well-being subscale were not reassessed by Wolcott and Glezer (1989), the authors did report a very high level of internal consistency ($\alpha = 0.87$) in their sample of over 1,100 clients in marriage counseling. In this same study, Wolcott and Glezer also reported a mean well-being score of 65 (SD = 13.3) for $n = 434$ women involved in marital therapy.

RESULTS

The two classes of coping (positive vs negative) crossed with the two types of drinker behavior (drunk vs sober) yield four sets of predictors of partner well-being. For each combination of dependent variable and predictor set, a standard multiple regression was performed. Assumptions of the regression method were assessed graphically by examining residuals from these models and found to be adequate in each case. Table 2 presents results for negative behaviors when the partner is drunk and when he or she is sober.

The table records the regression coefficient (B), the standardized regression coefficient (β), and R, R^2, and adjusted R^2 for the full model where all predictors are entered. The correlations between each variable have been included, and the means and standard deviations have also been recorded at the bottom of the table. In addition to standard multiple regression, subsequent stepwise regression models were fitted for both combinations of negative be-

Table 2.

Negative Behaviors and Psychological Well-Being

	When partner is drunk							
Variable	Well-being	Argue	Nag	Threaten	Hide	Plead	B	β
Argue	−0.11						−0.12	−0.01
Nag	−0.17	0.59					2.58	0.17
Threaten	−0.12	0.43	0.64				0.04	0.00
Hide	−0.19	0.28	0.33	0.41			2.66	0.18
Plead	−0.04	0.29	0.48	0.54	0.41		1.53	−0.12
R^2 = 0.06								
Adjusted R^2 = 0.00								
R = 0.24								
	When partner is sober							
Argue	−0.15						0.55	0.03
Nag	−0.15	0.75					−1.40	−0.07
Threaten	−0.27*	0.52	0.60				4.85	0.26
Hide	−0.20	0.37	0.45	0.39			2.67	0.12
Plead	−0.09	0.55	0.71	0.44	0.18		−0.20	−0.02
Mean	63.78	3.03	3.43	3.75	4.10	3.40		
SD	17.26	1.18	1.11	1.31	1.19	1.33		
R^2 = 0.09								
Adjusted R^2 = 0.00								
R = 0.30								

*$p < .05$.

haviors to identify the best prediction equation in each case. Table 2 shows no association between the use of negative behaviors and psychological well-being, irrespective of whether the strategy is used when the partner is drunk or sober. Stepwise multiple regressions resulted in no variables entering the equation during times of partner intoxication. However, when the partner is sober, the response "Threatening (to leave, to call the police, etc.) if your partner does not do something about his/her drinking" was found to be marginally and negatively related to psychological well-being [$R(59) = -0.27$, $p < .05$].

Table 3 presents the same standard multiple regression results for positive behaviors. In the case of positive responses, no association was found between response and well-being when the partner is intoxicated, but a marginally significant association was found when the partner is sober. In this latter case, stepwise multiple regression isolated one response: "Being pleasant towards your partner" [$R(59) = 0.33$, $p < .05$] as having a marginally significant, positive correlation with well-being.

Table 3.

Positive Behaviors and Psychological Well-Being

	While partner is drunk						
Variable	Well-being	Meal	Pleasant	Converse	Invite	B	β
Meal	0.06					0.47	0.04
Pleasant	0.13	0.48				-1.23	-0.07
Converse	0.16	0.35	0.57			-2.27	-0.14
Invite	0.02	0.24	-0.08	-0.08		-0.64	-0.04
$R^2 = 0.03$							
Adjusted $R^2 = 0.00$							
$R = 0.17$							
	While partner is sober						
Meal	0.25					-0.90	-0.06
Pleasant	0.33*	0.50				-4.33	-0.19
Converse	0.31	0.47	0.43			-3.69	-0.18
Invite	0.24	0.10	0.24	0.14		-2.39	-0.16
Mean	63.81	2.95	2.85	3.07	4.17		
SD	17.41	1.33	1.02	1.04	1.14		
$R^2 = 0.17$							
Adjusted $R^2 = 0.10$							
$R = 0.41$*							

*$p < .05$.

Finally, in assessing whether the sheer number of coping efforts is associated with respondents' level of well-being as reported by Orford et al. (1975), a count was made of the number of occurrences of "always" and "often" in answer to the "Responses to Intoxication" checklist. The correlation between this figure ($\bar{x}$ = 2.18, SD = 1.99) and psychological well-being was then calculated and found to be nonsignificant [$r(59) = 0.09$].

DISCUSSION

Perhaps the most striking feature of this study is how little of the variance in partners' well-being was accounted for by their behavior towards the drinker. As Table 4 indicates, only one combination of coping behavior and drinker's state produced statistically significant results, and even in this case the effect was relatively weak.

Bearing in mind that correlational research of this kind cannot identify causal directions, the best that can be said to partners is that there may be some advantage to them in adopting positive behaviors and avoiding threats when the partner is sober. However, none of the behaviors measured is associated with higher subjective well-being when the drinker is intoxicated. This is a surprising result given that the behaviors measured have been the subject of claim and counterclaim in the coping literature reviewed earlier. As previously discussed, for example, some partner programs strongly advocate against threatening behavior toward the drinker, while others either assert or imply that confrontation provides the partner with a greater measure of control. By contrast, the implication of the present study is that it may not be possible to generalize in this way about coping behaviors. It is more likely that the optimal coping response will vary according to situational and individual difference variables not included in the present study. It may also be that the partner's level of well-being is determined more by factors extrinsic to his or her relationship with the drinker: such factors as the degree of social support and the extent and nature of activities outside the home. Before such factors can be translated into

Table 4.

Summary of Findings Showing Combination of Coping Behavior and the Drinker's State

	Coping behavior	
Drinker's state	Positive	Negative
Intoxicated	No effect	No effect
Sober	Marginal effect	No effect

programs for the partners of "heavy drinkers," however, further research is clearly needed into the correlates of partner well-being.

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RESUMEN

Esta ponencia informa sobre un estudio de regresión múltiple en el cual se compara la eficacia de reacciones positivas y negativas adoptadas por los cónyuges de bebedores empedernidos bajo condiciones de intoxicación alcohólica y sobriedad. Los resultados indicaron que únicamente una combinación del tipo de reacción y el etado del bebedor estaba relacionada con altos niveles de bienestar del cónyuge: reacciones positivas cuando el bebedor está sobrio. Por otra parte, incluso esta pauta de reacción justificaba relativamente poca variación en las puntuaciones del bienestar de los cónyuges. Se concluvó que los programas dirigidos a mejorar la calidad de vida de los cónyuges no deberían de generalizar acerca de las reacciones de comportamiento más deseables sino que deberían tener en cuenta la diferencia de variables de las situaciones y los individuos.

RÉSUMÉ

Ce document donne un rapport sur une étude des rechutes multiples dans lesquelles l'efficacité des attitudes positives et négatives adoptées par les partenaires des grands buveurs a été comparée lorsque les buveurs étaient ivres ou sobres. Les résultats ont montré que seulement une combinaison de réponse

type et d' état du buveur était associée à des niveaux élevés de bien être du partenaire: réponses positives quand le buveur est sobre. Mais même cette attitude d'adaptation a été responsable de relativement peu de différence au niveau du bonheur du partenaire. Il est à conclure que les programmes qui visent à améliorer la qualité de vie des partenaires ne devraient pas faire de généralisation quant aux comportements attendus mais devraient tenir compte des différences de variables situationnels et individuels.

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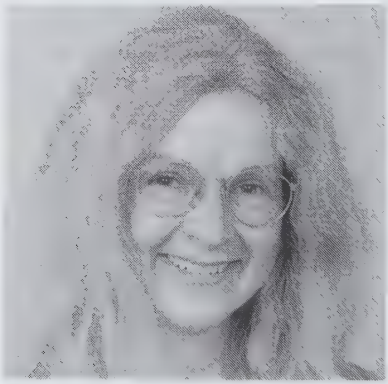

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Research Note

The Drinking Behaviors of a Sample of University Students in Nanning, Guangxi Province, People's Republic of China

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ABSTRACT

A Chinese translation of the *Student Alcohol Questionnaire* was administered to a sample of 190 students at two universities in Nanning, China. Males consumed alcohol significantly more frequently and in greater quantities than did females. A significantly higher proportion of males also experienced problems resulting from their drinking. Beer was the alcoholic beverage of choice for both males and females. Most students of both genders drank with friends, and most have also consumed with their parents; about half reported that their parents approved of their alcohol consumption. The results support earlier observations that moderate drinking is widely accepted in the Chinese culture and results in few problem.

Key words. University students; Drinking behaviors; Chinese

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INTRODUCTION

A variety of alcoholic beverages have been used in China since prehistoric times (Granet, 1957). They have been widely used in all segments of Chinese society as a source of inspiration, for hospitality, and as an antidote for fatigue (Samuelson, 1878; Fei-Peng, 1982).

The Chinese have long been recognized as a group that uses alcohol in moderation and that experiences very few drinking problems compared to North Americans and some Northern Europeans (Hsu, 1970; LaBarre, 1946).

Recent studies of Chinese in China, Taiwan, Singapore, and the United States indicate that most consume alcohol in moderation, on special occasions, and where there are social controls on their drinking. Very few experience any drinking problems (Pai, 1991; Helzer et al., 1990; Chi, et al., 1988, 1989; Akutsu et al., 1989; Ahern, 1985; Yu et al., 1985; Yu and Liu, 1986/1987; Isralowitz and Hong, 1988; Kitano and Chi, 1985; LeMarchand et al., 1985; Sue et al., 1985). (See Table 1 for details of this literature.)

It is commonly known that males in western cultures drink much more frequently and in larger amounts than females. A few studies suggest that this is also found among Chinese cultural groups (Sue et al., 1985; Yu et al., 1985). However, the differences between male and female drinking in Chinese culture may disappear with age (Weatherspoon et al., 1994; Yu and Liu, 1986/87).

Reports have suggested that male university students consume more alcohol than female students in Western cultures (Hanson and Engs, 1990). However, the literature concerning students in Asian cultures is sparse. One study involving Chinese students in Singapore found that 72% of males and 52% of females consumed alcohol (Isralowitz and Hong, 1988).

Most reports concerning Chinese drinking patterns have been based on those living outside of China. No literature was found concerning the drinking patterns of students in the People's Republic of China in either the English or Chinese languages. In view of the fact that males consume more alcohol than females and tend to have more problems related to alcohol in other countries, this study was conducted to determine if these differences are also found among university students in one community of the People's Republic of China.

METHODS

Sample

A convenience sample was used for this study. The sample consisted of undergraduate students attending Guangxi University and Guangxi National College in Nanning, the capital of Guangxi province. This predominantly ru-

Table 1.

The Use and Misuse of Alcohol by Chinese: Selected Parameters, Processes, and Studies

Author	Year	Country	Data source	Data collection	Respondent/subject	Comparison group(s)	Data collected	Results	Limitations
Pai	1991	USA	Healthier People (the Health Risk Appraisal Questionnaire)	Convenience sample of 100 Chinese graduate students with 42% response rate	Chinese graduate students from Taiwan (R.O.C.) and China (P.R.O.C.)	Non-Chinese graduate students	Proportion of students who drink	36% of Chinese students reported drinking, 31% reported abstaining and 34% provided no information. There were no heavy drinkers. Sixty-nine % of non-Chinese were drinkers and 19% were heavy drinkers.	34% of of Chinese respondents did not provide information on drinking
Chi et al.	1989	USA	Drinking behaviors based on questions from Cahalan's quantity, Frequency, and Variability Scale	Purposive sampling based on Los Angeles (CA) telephone book	298 Chinese-Americans, 295 Japanese-Americans, and 280 Korean-Americans who completed the interviews	Japanese-American and Korean-American residents of Los Angeles (CA)	Proportions of abstainers, moderate drinkers, and heavy drinkers	Chinese-Americans had highest proportion of moderate drinkers and lowest proportion of heavy drinkers, compared to Japanese-Americans and Korean-Americans	Refusal rate not reported
Klatsky et al.	1977	USA	Medical treatment records	Analysis of treatment records for patients aged 15–79 for period 1964–1968	Asian patients in Kaiser-Permanente Medical Care Program	Caucasian and Afro-American patients in same medical care program	Proportion of drinkers among Asian patients, of whom 57% were Chinese	Asian sample had many more abstainers among both males and females than did comparison groups	Sample included 43% non-Chinese Asians; data are now dated
Yu et al.	1984	USA	1977 National Health Interview Study	Interview survey of 41,000 households nationwide	One-third subsample of persons 20 years and older	None	Drinking frequency of Asian/Pacific Americans	More Asian/Pacific Americans were abstainers than frequent drinkers (3 or more times per week)	The Asian/Pacific American category cannot be disaggregated to identify Chinese-Americans

(*continued*)

Table 1. *Continued*

Author	Year	Country	Data source	Data collection	Respondent/subject	Comparison group(s)	Data collected	Results	Limitations
Isralowitz and Hong	1988	Singapore	Engs and Hanson's Student Alcohol Questionnaire	Questionnaires mailed to stratified random sample of 1,840 students, with a 63% usable response rate	1,160 college students in Singapore (767 Chinese, 127 Maly, and 185 Indian students)	College students in Israel and the USA	Quantity and frequency of drinking as well as nature and extent of drinking problems	61% of respondents were drinkers (72% of men and 52% of women). A much lower proportion of students in Singapore reported experiencing drinking problems compared to students in Israel and the USA	Sample included 34% non-Chinese students
Yu and Liu	1986/1987	USA	Questions asked in an exploratory study of cognitive impairment	Interviews	Clients aged 50 years or older entering the Chinese-American Service League in Chicago's Chinatown	None	Proportion of drinkers	While the proportion of abstainers was high, it decreased with advancing age	Small (n = 142) non-random sample
Sue et al.	1985	USA	Data collected but unanalyzed and unreported by Kitano and Chi (1985)	Interviews	Heads of households in Los Angeles (CA): Chinese n = 298, Japanese n = 288, Korean n = 280	Japanese-Americans and Korean-Americans	Proportions of abstainers, moderate drinkers, and heavy drinkers	Chinese-Americans dramatically less likely to be heavy drinkers	Lack of detailed questions regarding drinking patterns, especially in relation to acculturation

ral inland province is located in the southeastern part of the People's Republic of China. Approximately 7,000 students attend Guangxi University and about 3,500 attend Guangxi National College (Guangxi Yearbook Editorial Group, 1992; Gu and Pen-Feng, 1993).

During the autumn term of the 1993-1994 academic year, students in several "study classrooms," where students are assigned to study when not attending classes, were asked to participate in the survey by the Chinese author. The students were told the study was a collaborate effort with American researchers and that responses were anonymous. The response rate was 100%. Of the 190 individuals who completed questionnaires, 55.3% were liberal arts and 44.7% were science and engineering students. In terms of class year, 37.9% were first, 48.4% second, 5.3% third, and 8.4% were fourth year students. Of the total sample, 58.5% were male and 41.5% female. The mean age was 21.1 years and ranged from 18 to 35 years of age.

Survey Instrument

Parts of the *Student Alcohol Questionnaire* (Engs, 1974; Engs and Hanson, 1994) were used for this study. This instrument is highly reliable and has been used by several researchers studying university students's drinking patterns in Western and Asian cultures over the past few years (Engs and Aldo-Benson, 1995; Hayworth-Hoeppner et al., 1993; Hong and Isralowitz, 1989). The reliability of the 19 items selected for the Chinese version were recalculated. The Spearman–Brown reliability coefficient was .98, Chronbach's alpha was .90, and Gutman's split-half coefficient was .55. The reliability coefficients of individual items ranged from .2 to .9 for the 19 questions.

The items were grouped into three categories. The first contained three items about usual drinking patterns (see Table 2), the second consisted of 11 items related to drinking behaviors (see Table 3), and the third category included five items assessing attitudes toward drinking and perceived attitudes of significant others toward the respondent's alcohol consumption (see Table 4). The students completed this pencil and paper questionnaire in about 15 minutes.

Since the questions in the Chinese translation were not worded in such a way as to make possible the calculation of a quantity-frequency index, only descriptive information could be determined. Chi-square analyses were used to compare the responses of male and female students.

Limitations of the Study

Only items considered relevant to the culture by the Chinese author's department were selected. They were translated by this author and her col-

leagues at Guangxi Medical University into Chinese. Some items were modified to make them more appropriate. For example, "driving a car" was changed to "riding a motor bike or bike." The Chinese version was then "backtranslated" into English for comparison with the original items. In spite of this process, the same questions may not have had the same or exactly equivalent meanings in Guangxi province.

Another limitation of the study was that the sample was not randomly selected from all undergraduate students from the two universities. This convenience sample is limited to those students who were assigned to a particular study classroom and for whom permission to administer the questionnaire was granted.

RESULTS

Drinking Patterns of Male and Female Students

Male students in this sample reported they consumed alcohol significantly ($\chi^2 = 48.3$, $df = 4$, $p < .001$) more frequently compared to females. Both

Table 2.

Chi-Square Analysis Comparing the Drinking Patterns of Male and Female Students

Usual drinking pattern	Males (%)	Females (%)
Frequency of drinking among all students:[a]		
Daily	10.0	2.6*
Once week but not daily	19.1	7.6
At least once month but less once a week	33.6	24.4
Holiday	29.1	12.8
Not at all	8.2	52.6
Type of beverage consumed by drinkers:[b]		
Beer	59.4	78.4
Chinese medicine wine	28.7	13.5
Light wine (<15% alcohol)	5.0	5.4
Medium wine (15–30% alcohol)	5.9	0.0
Strong wine (>30% alcohol)	1.0	2.7
Usual amount consumed by drinkers:[b]		
<50 mL	27.6	61.0+
50–100 mL	39.2	25.0
100–150 mL	21.8	5.6
150–200 mL	8.0	2.8
200–250 mL	3.4	5.6
> 250 mL	0.0	0.0

[a]Males, $N = 110$. Females, $N = 78$.
[b]Males, $N = 101$, Females, $N = 37$.
+$p < .05$; * $p < .001$.

males and females reported beer as the most commonly used beverage. Chinese medicine wine or "tonic" was the second most commonly consumed alcohol beverage by both groups. Males consumed significantly ($\chi^2 = 14.4$, $df = 4$, $p < .05$) more alcohol compared to females (see Table 2).

Drinking Related Behaviors and Problems Related to Alcohol

There was a significant difference between males and females ($\chi^2 = 29.1$, $p < .001$) in the setting of their first drinking experience. However, there was no difference between gender in place or situation of usual alcohol consumption (see Table 3).

A significantly higher percentage of males reported problems resulting from drinking with the exception of "having got into trouble with the school administration" because of drinking too much.

Table 3.

Chi-Square Analysis Comparing the Percentage of Male (N = 101) and Female (N =37) Students Reporting Drinking-Related Behaviors or Problems

Behavior	Males (%)	Females (%)
1. Situation of first drink:		
Alone	8.5	5.9*
With friends	60.7	26.6
With parents	10.6	52.9
With siblings	4.3	8.8
With other relatives	8.5	2.9
Other adults	7.4	2.9
2. Situation of usual consumption:		
Alone	7.8	5.5
With friends	42.6	27.0
With parents	5.0	10.8
With siblings	2.0	8.1
With other relatives	4.0	5.4
Other adults	38.6	43.2
3. Has consumed alcohol with parents	76.2	78.4
4. Has consumed alcohol alone	50.5	35.1
Has experienced following problems related to drinking:		
5. Hangover	53.2	15.4*
6. Nausea and vomiting	21.8	2.6*
7. Driving motor bike (or bike) after drinking	43.6	10.4*
8. Missed class because of hangover	11.8	2.6+
9. Been criticized by close friend because of drinking too much	23.6	3.8*
10. Received a lower grade because of drinking too much	8.2	1.3+
11. Been in trouble with the school administration because of drinking too much	8.2	2.6

+$p < .05$; *$p < .001$.

Table 4.

Chi-Square Analyses Comparing the Percent of Male (N = 101) and Female (N = 37) University Students Reporting Various Attitudes Toward Drinking or Perceived Attitudes of Significant Others

Attitudes	Males (%)	Females (%)
Would consume alcohol if there was no social pressure to do	19.0	2.7+
Would feel uneasy about acknowledging use of alcohol to a person whom they knew did not approve of its use	48.5	38.9
Father approves of their alcohol consumption	49.5	58.3
Mother approves of their alcohol consumption	41.6	54.1
Thought that a teacher would be displeased with them if they consumed alcohol	33.7	21.6

$^{+}p < .05$.

Attitudes and Perceived Attitudes of Significant Others

Of the five attitudinal items, only one yielded a significant ($\chi^2 = 5.7$, $df = 1$, $p < .05$) difference between males and females; a higher percent of males said they would "consume alcohol if there were no social pressure to do so" (Table 4).

DISCUSSION

The results appear to confirm previous findings of males and females in general and university students in particular. In this sample of students, as was found by Isralowitz and Hong (1988) among Chinese students in Singapore, beer was the beverage of preference. Chinese medicine wine was the next most common beverage consumed. Such wine is considered a tonic which will increase virility and health. As has been found in other studies of Chinese cultures outside the People's Republic, males were more likely to consume alcohol and to do so with greater frequently and in greater quantity consistent with other studies. Males also reported their first drinking experience with friends whereas females with family. Consistent with other studies of university students in western cultures, males also reported more problems related to alcohol compared to the female students.

The lack of differences between males and females for items concerning perceived attitudes on the part of parents and a respected authority figure toward their drinking may reflect the general acceptance of alcohol use for both sexes among this Chinese sample. These results appear to mirror earlier ob-

servations that suggest moderate alcohol consumption is widely accepted throughout Chinese culture. Alternatively, the lack of differences in perceived attitude could be reflective of the social forces which have attempted to diminish inequality between the genders over the past few decades. Given the continuing changes in Chinese society including industrial urbanization, it will be important to examine drinking-related behaviors and attitudes over time.

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RESUMEN

Se dió a rellenar a una muestra de 190 estudiantes de dos universidades de Nanning, China, una traducción al chino del *Cuestionario sobre el Consumo de Alcohol por Estudiantes (Student Alcohol Questionnaire)*. Los varones consumían alcohol con mas frecuencia y en mayores cantidades que las hembras (diferencia significativa, $p < 0.05$). Una proporción significativamente

mayor de varones también tuvieron problemas a causa de su consumo de bebidas alcohólicas. La cerveza era la bebida alcohólica preferida por ambos sexos. La mayoría de los estudiantes de ambos sexos bebían con sus amigos, y la mayoría también había consumido bebidas alcohólicas con sus padres; aproximadamente la mitad dijeron que sus padres aprobaban su consumo de alcohol. Los resultados apoyan las observaciones hechas anteriormente de que el consumo moderado de bebidas alcohólicas está aceptado ampliamente en la cultura china y de que produce pocos problems.

RÉSUMÉ

Traduit en chinois, le *Questionnaire sur la consommation d'alcool en milieu étudiants*, a été complété par 190 étudiants de deux universités de Nanning en Chine.

Les étudiants de sexe masculin consomment de l'alcool beaucoup plus fréquemment et en plus grande quantité que les étudiants de sexe féminin. Une proportion plus importante d'étudiants masculins semble présenter quelques troubles de comportement aprés avoir consommé de l'alcool. La bière est la boisson alcoolisée de choix pour les étudiants des deux sexes. La plupart des étudiants boivent avec leurs amis et consomment en compagnie de leurs parents; à peu près la moitié des étudiants indiquent que leurs parents n'objectent pas à ce qu'ils consomment de l'alcool.

Les résultats de l'étude viennent appuyer les observations préliminaires selon lesquelles une consommation modérée d'alcool est acceptée à grande échelle dans la culture chinoise, et entraine des troubles de comportement moindres.

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Ruth C. Engs, Professor of Applied Health Science, Indiana University, Bloomington, is the author of numerous publications. In 1995 she was editor for a special issue of *Addiction Research: Alcohol Use in Cultural and Historical Perspectives*. Since the mid-1970s she has accomplished widely cited research of university students' drinking patterns and health issues in several cultures. She and David Hanson have jointly examined trends in drinking among collegians in the United States.

David J. Hanson is Professor of Sociology at the State University of New York at Potsdam. He is the author of over 275 publications, one of the most recent being *Preventing Alcohol Abuse: Alcohol, Culture and Control*. His research is reported in textbooks in over a dozen disciplines. Since the early 1980s he has collaborated with Ruth Engs on nationwide longitudinal research of drinking patterns and problems among university and college students.

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